

2002-2004



UNIVERSITY *of* MARYLAND

School of
Medicine

2002–2004



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School of Medicine

The Oath of Hippocrates

I do solemnly swear by that which I hold most sacred that I will be loyal to the profession of medicine and just and generous to its members. That I will lead my life and practice my art in uprightness and honor. That into whatsoever house I shall enter it shall be for the good of the sick to the utmost of my power. I hold myself aloof from wrong, from corruption, from the tempting of others to vice. That I will exercise my art solely for the cure of my patients, and will give no drug, perform no operation for a criminal purpose even if solicited, far less suggest it. That whatsoever I shall see or hear of the lives of men, which are not fitting to be spoken, I will keep inviolably secret. These things I do promise and in proportion as I am faithful to this my oath, may happiness and good repute be ever mine; the opposite if I shall be forsworn.



University of Maryland School of Medicine
University of Maryland Baltimore
655 West Baltimore Street
Baltimore, Maryland 21201-1559

Admissions Office: (410) 706-7478

The University of Maryland Baltimore is an equal opportunity institution with respect to both education and employment. The University's policies, programs and activities conform to pertinent federal and state laws and regulations on nondiscrimination regarding race, color, religion, age, national origin, sex and handicap.

The School of Medicine has the objective of securing a broad racial, sexual and ethnic balance in its enrollment. To achieve this objective it gives every consideration to minority student applications.

The University of Maryland Baltimore is accredited by the Middle States Association of Colleges and Schools. The School of Medicine is accredited by the Liaison Committee of Medical Education, the accrediting body for the Association of American Medical Colleges and the American Medical Association.



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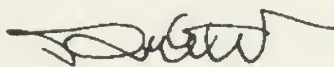
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Welcome From the Dean

I am delighted to share with you the information in this catalog, which provides an overview of the University of Maryland School of Medicine and its educational programs. We are very proud of our students – a wonderfully diverse group from all over the world. The University of Maryland School of Medicine has a proud tradition of excellence beginning with our founding in 1807. Our dedicated and outstanding faculty, staff, and students continue this tradition today.

I am pleased that you are interested in the School of Medicine and I invite you to learn all that you can about our school. If you still have questions, please call our Admissions Office at (410) 706-7478 or check our website at **<http://medschool.umaryland.edu>**.



Donald E. Wilson, MD, MACP
Vice President for Medical Affairs &
Dean, School of Medicine

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Profile

Established in 1807, the University of Maryland School of Medicine is the fifth oldest medical school in the United States, the first to build its own teaching hospital and the first to institute a residency-training program. The School of Medicine is the founding school of the University of Maryland, and today it is an integral part of the 13-campus University System of Maryland. On the University of Maryland Baltimore campus, the School of Medicine serves as the foundation for a large academic health center that combines medical education, biomedical research, patient care and community service. While its traditional excellence remains constant, the School of Medicine and its national reputation continue to grow.

The School of Medicine boasts the oldest building in the Western hemisphere in continuous use for medical education, the meticulously restored Davidge Hall, built in 1812. Two major classroom and laboratory buildings, the fourteen-floor Bressler Research Building and the nine-floor Medical School Teaching Facility, were completed in the mid-1970s. The mid-rise Biomedical Research Facility was completed in late 1992. Health Sciences Facility I (HSFI), an interdisciplinary research and teaching facility, was completed in 1995. HSFI provides clinical and basic science departments and animal care facilities with approximately 80,000 additional net square feet. HSFI also provides a much-needed connection from the Medical School Teaching Facility to Howard Hall and the Bressler Research Building. Construction has begun on Health Sciences Facility II (HSFII), a 101,000 square foot state-of-the-art biomedical research facility. This six-story building will house laboratories, research offices and conference rooms. All but one major medical school research building is physically linked to the University of Maryland Medical Center and the Baltimore Veterans Affairs Medical Center.

The University of Maryland Baltimore campus continues to expand as well. The 137-bed Baltimore Veterans Affairs Medical Center, immediately adjacent and connected by bridge to the University of Maryland Medical Center, joined the campus in 1993. Gudelsky Tower, the new high-tech University Hospital patient tower opened in 1994, and was followed in 1995 by complete restructuring and enhancement of the two-block hospital facade and main lobby. Completed in late 1995, the University of Maryland Biotechnology Institute's Medical Biotechnology Center occupies a 196,000 square foot facility. The center focuses on medical biotechnology research and training and serves as a catalyst for economic development in health related aspects of molecular biology and medical biotechnology at the basic, applied and clinical levels. The new Health and Human Services Library opened in 1998. It provides cutting-edge service and amenities to its users and also serves as a Regional Medical Library of the National Library of Medicine.

The University of Maryland Baltimore

The University of Maryland Baltimore (UMB), designated "UniversityCenter" by the city of Baltimore administration, is the founding campus of Maryland's public university system. It is a thriving center for education, patient care, research and community service. Seven graduate and professional schools — the Graduate School, the Dental School and Schools of Law, Medicine, Nursing, Pharmacy, and Social Work — together with the University of Maryland Medical System, Greenebaum Cancer Center, R Adams Cowley Shock Trauma Center, the Baltimore Veterans Affairs Medical Center and the University of Maryland Biotechnology Institute's Medical Biotechnology Center — educate physicians, research scientists and many of the region's health care, law and social work practitioners.

With \$169.8 million in sponsored program support in FY00, UMB is one of the fastest growing biomedical research centers in the country. The University of Maryland Baltimore is ideally configured to maximize collaborative opportunities with government agencies in tackling complex health care, public policy and societal issues. Its location within the Baltimore-Washington-Annapolis triangle—at the hub of one of the greatest concentrations of health care institutions, research facilities, government agencies and professional associations in the nation—offers a unique combination of strengths to comprehensively address regional problems with the resulting conclusions having the potential for global implications. Areas of multidisciplinary research, scholarship and community action include AIDS, aging, vaccine development, multiple sclerosis, schizophrenia, hypertension, lead poisoning, cancer, child abuse and homelessness, offering students a wide selection of field experiences.

Partnerships among university components and with the University of Maryland Medical Center and the Baltimore Veterans Affairs Medical Center continually strengthen interdisciplinary research, education and service endeavors.

Milestones

The foundation of the School of Medicine dates back to 1789 with the organization of the Medical Society of Baltimore and Baltimore physicians' awareness that their numbers were decreasing following the Revolutionary War. Foreseeing a potential opportunity for charlatans to "practice" the art of medicine, founders of the medical society began to train prospective physicians in their own homes, offering instruction in anatomy, surgery and chemistry. Soon faced with strong citizen protest of anatomical dissection, the physician-teachers petitioned the Maryland State Legislature to establish a college of medicine on a firm basis and under the protection of the law. A charter incorporating the College of Medicine of Maryland was approved by the Maryland General Assembly on December 18, 1807.

The fledgling College of Medicine of Maryland was in urgent need of a proper building, and a lottery was authorized—not to exceed \$40,000—to benefit the medical college's building fund. Over the next 15 years, seven more lotteries were authorized to benefit the school.

Dr. John Beale Davidge, a native Marylander trained in Scotland, became the first dean and took the chair in surgery. His founding faculty were Dr. James Cocke (anatomy and physiology), Mr. James Shaw (chemistry) and Dr. Nathaniel Potter (theory and practice of medicine). From Col. John Eager Howard, a Revolutionary War hero and former Maryland governor, Davidge, Shaw and Cocke purchased land that was "quite some distance from town" to protect against unruly mobs who had demolished the doctors' first anatomical theater in violent opposition to the dissection of human cadavers.

From the school's very beginning there was strong emphasis on bedside teaching. The first class of seven received clinical instruction at the Baltimore Almshouse, a warehouse, a theater and infirmary for the poor.

Completed in 1812, Davidge Hall was built by Robert Carey Long, Sr., and modeled after the Pantheon in Rome. The first classes were held in the new building in 1813, the same year the College of Medicine of Maryland became the University of Maryland. In addition to its two expansive circular amphitheaters constructed one atop the other, Davidge Hall was built with dissecting cubbyholes, secret stairways and hidden exits that afforded early students and their professors safe passage from angry mobs. It is said that the 1812 British bombardment of Fort McHenry was viewed from the veranda of Davidge Hall, while in the harbor a few miles away Francis Scott Key was writing the "Star Spangled Banner." Davidge Hall was meticulously renovated in the early 1980's and recognized as a National Historic Place. In 1998 it was designated a National Historic Landmark.

The Baltimore Infirmary, forerunner of the University of Maryland Hospital, was built opposite Davidge Hall in 1823, on the site of the present Baltimore Student Union. It was the first hospital founded by a medical school for the express purpose of clinical instruction. It was also the site of the first intramural residency program established in the United States. Senior medical students lived in the hospital while helping to care for patients. The building was still in active use until 1973, when its clinics were moved into the newly constructed north-wing addition to the University of Maryland Hospital (circa 1934) and the old building razed.

In curriculum development, the University of Maryland School of Medicine enjoys a long and proud tradition as an innovative leader. Maryland was the first school to recognize the value of the basic sciences. In 1800, Dr. John Crawford was the first to vaccinate Baltimoreans against smallpox. As early as 1810, he had presented evidence of the contagious character of tuberculosis. The gift of Dr. Crawford's personal library became the nucleus of Maryland's extensive medical library.

In 1833 the school introduced the first preventive medicine course. The techniques of auscultation and percussion were taught at the School of Medicine for the first time in Baltimore as early as 1841, and in 1844 Dr. David Stewart, the first professor of pharmacy in the United States, initiated his lectures at Maryland. In 1848, Maryland became the first school to require anatomical dissection, followed six years later by the introduction of compulsory courses in gross and microscopic pathology. Compulsory courses in experimental physiology and microscopy were introduced six years later. A milestone in cancer research occurred in 1853, when Maryland's Dr. Francis Donaldson became the first person in America to advocate biopsy and microscopic diagnosis of malignancy. Maryland was the first to establish chairs in the diseases of women and children (1867) and diseases of the eye and ear (1873).

Mergers with the Baltimore Medical College in 1913 and the College of Physicians and Surgeons in 1915 enabled the school to expand its clinical facilities and faculty. Early in the twentieth century, Drs. James Rowland and Louis Douglas initiated off-site obstetrical care and home delivery, prenatal clinics and an Rh blood-typing laboratory, significantly improving infant and maternal health.

The School of Medicine has had its share of medical breakthroughs, including in more recent decades the first successful antibiotic treatment of Rocky Mountain spotted fever, the first cure for typhoid fever and the first laparoscopic ulcer surgery. In 1967, the school began one of the first formalized family practice residency programs in the country. In 1994, Maryland became the first medical school in the nation to integrate medical informatics into its curriculum.

The R Adams Cowley Shock Trauma Center, which opened in 1961, serves as a worldwide model for emergency medical treatment. The University of Maryland Greenebaum Cancer Center is a strong participant in new drug development and research, and virtually every important drug used in oncology has been tested in this program.

Today's University of Maryland School of Medicine is an exciting, vibrant institution where medical history continues to be written.

Education

The School of Medicine initiated a new curriculum with the 1994 entering freshman class. The new curriculum differs from the previous, more traditional curriculum in the following areas: the basic sciences are no longer taught as discipline-specific "courses" but are integrated and taught as "blocks," using interdisciplinary teaching with both basic and clinical science teachers. Committees chaired by faculty members from major block courses determine course content and teaching methodologies. Lectures, small discussion groups and laboratories are used with extensive time available for self-learning. Problem-based learning was tested in several blocks during the 1994–95 academic year with more widespread use in the 1995–96 freshman year. The sophomore year also utilizes the interdisciplinary "blocks" approach as the freshman class moved into the

second-year curriculum in 1995–96. There is a marked reduction in lecture hours with an emphasis on independent study with availability of mentors and learning resources. Another major change is a half-day course dedicated to the Introduction to Clinical Practice which was initiated at the inception of the 1994–95 freshman year and continues throughout the first two years. This course includes instruction in interviewing techniques, physical examination, intimate human behavior, ethical issues and the dynamics of ambulatory care delivery. Much of this two-year longitudinal experience is gained off-site in clinical settings. Changes within the last two years of medical education include a mandatory ambulatory month-long rotation in family medicine, emphasis on ambulatory teaching in all other clinical rotations, and a longitudinal half-day experience in a clinical setting in which the student will have continuity of care for patients and families.

The ties between the medical school and the hospital enrich and enhance both medical education and health care. All physicians practicing at the University of Maryland Medical System and at the Faculty Professional Building have School of Medicine faculty appointments and are actively involved in the educational process in addition to supervising residency training for more than 600 postgraduate positions at the University of Maryland Medical Center and affiliated hospitals. The Medical System includes a 724-bed teaching hospital, the Greenebaum Cancer Center and R Adams Cowley Shock Trauma Center on campus, as well as the James Lawrence Kernan and Deaton Hospitals off campus.

Medical care and education are further enhanced by the location of the Baltimore Veterans Affairs Medical Center on this campus in a state-of-the-art hospital adjacent to the School of Medicine and the University of Maryland Medical Center. Together, these facilities serve as the major clinical training sites as well as sources of comprehensive health care for the local community and the state. The school also has established clinical affiliations throughout the region, giving students unusual flexibility in clinical experiences.

In an effort to nurture more interest in basic research and to meet the increasing demand for physician-scientists, the school offers a combined MD/PhD program in 10 medical disciplines and an MD/MS program in preventive medicine. Although the schedule can be flexible, MD/PhD students typically complete the freshman and sophomore years of medical school, enroll as graduate students until PhD completion, and then begin their clinical clerkships. Combined MD/PhD degree studies can be completed within six to eight years.

Medical students in the track leading to the MD/MS in preventive medicine may complete the dual-degree program in five years. The fifth year is counted as one year of preventive medicine residency training by the American Board of Preventive Medicine.

Graduate programs are offered at the master's and doctoral levels in the basic sciences. There is a baccalaureate program in medical and research technology, a master's program in physical therapy, a master's program in genetic counseling, as well as a number of interdisciplinary programs with both service and research components.

Continuing education programs are sponsored for practicing physicians throughout the region.

The School of Medicine offers students an excellent spectrum of resources and field experiences. Located along the Baltimore-Washington corridor, the school is in the midst of a great concentration of health care institutions, research centers, government agencies and professional associations.

Research

The University of Maryland School of Medicine is one of the country's fastest growing research institutions, with total awards of \$169.8 million in FY00. According to the Association of American Medical Colleges (1998-99), the School of Medicine ranked 9th among public medical schools in direct NIH funding, ranking in the top 20 percent of all public medical schools.

That funding, combined with our faculty's expertise and cutting-edge research, has produced some remarkable breakthroughs:

- Discovered genetic biomarker for earlier diagnosis of esophageal cancer that may lead to better, more effective treatment (2000).
- Introduced Intensity Modulated Arc Therapy (IMAT), which delivers a higher, more uniform concentration of radiation that attacks tumors while sparing surrounding organs and tissues (2000).
- First to offer new treatment for inoperable liver cancer, TheraSphere, a therapy that uses microscopic glass beads to deliver radiation directly to tumors (2000).
- Discovered receptor in the brain that is key to understanding the blood-brain barrier — the nearly impenetrable interface between the bloodstream and the brain (2000).
- Performed more kidney transplants than any other medical center in the U.S., and became the second largest center for pancreas transplants (1999).
- Performed the most laparoscopic kidney removals from living kidney donors in the world (1996-2000).
- Developed first blood test to detect the enzyme telomerase, which can indicate the early spread of lung cancer (1999).
- Developed a successful blood cleansing procedure to enable people on kidney dialysis to receive a kidney transplant without fear of immediate rejection (1999).
- Discovered first clear link between autism and gastrointestinal disorders (1999).

In the last several years the School has consistently produced more than 50 invention disclosures annually and over 50 patents since 1997, establishing Maryland as a hub for life sciences activity in the region. Technologies developed at the School of Medicine have formed the basis for at least five Baltimore-area companies.

Other research projects are examining how intervention can make a difference for inner city youngsters trying to avoid the perils of HIV infection, drug use and street violence. Another project is tracking how intensive outreach can keep trauma victims from becoming repeat shock trauma patients.

Community Service

The School of Medicine's most important mission continues to remain the same after nearly two centuries, that of educating physicians to meet the health care needs of the people of Maryland and beyond. The School of Medicine is a vital part of the West Baltimore neighborhood in which it resides, and its faculty, staff and students are increasingly involved in activities that bring a better quality of life to its neighbors.

Each year School of Medicine students provide hundreds of thousands of hours of service in hospitals, clinics, homeless shelters and schools throughout the state. Program involvement includes:

- S.T.O.P. AIDS—Student/Teacher Outreach Program—sends volunteer students into Baltimore City Public Schools to discuss HIV prevention. Thousands of West Baltimore elementary and middle school students have been taught about the disease's medical and social implications.
- Domestic Violence Workshop - student volunteers sponsor a workshop that creates a heightened awareness of this complex problem and teaches future physicians how to spot the sometimes subtle signs of abuse.
- Health Care and the Homeless Project—allows students to spend time at shelters such as South Baltimore Station, providing health care screening and education.

Faculty members provide countless uncompensated hours of primary and preventive care to the residents of Baltimore through programs such as:

- Baltimore Alliance for the Prevention and Control of Hypertension and Diabetes—brings all of the resources of the University of Maryland physician community together to promote accessible, comprehensive hypertension and diabetes education, prevention and treatment strategies within the Baltimore community, with emphasis on the underserved.
- Focus on Kids—a community/university partnership that addresses the many issues, including HIV, drug use and violence facing pre-adolescents and adolescents.
- Paquin Family Health Center—a school-based health center at Paquin High School, Baltimore City's school for pregnant young women and teen mothers. Primary, pre- and post-natal care and psychosocial support are provided for mother and child.

The Campus and Beyond

The School of Medicine is an integral part of one of the country's first centers for professional education and research. Its urban campus, shared with six other professional schools and the Health Sciences and Human Services Library, the University of Maryland Medical System, the University of Maryland Biotechnology Institute's Medical Biotechnology Center and the Baltimore Veterans Affairs Medical Center, also hosts the Hope Lodge and Baltimore Ronald McDonald House, both offering low cost housing and a home-atmosphere for adult and pediatric outpatients and their families receiving medical treatment in the Baltimore area.

Opportunities abound for faculty and students to join with other health and human service professionals in interdisciplinary study, informal discourse and collaborative clinical practice and research, offering students a wide selection of field experiences.

In addition to professional opportunities, Baltimore offers a stimulating environment in which to live and study. Baltimore residents enjoy the sophistication of a large metropolitan city combined with easy accessibility to surrounding beaches, mountains and rural areas. The many attractions and resources of Washington, D.C., are less than a one-hour drive from Baltimore.

Having been the setting for significant events in the history of our country and a renowned foreign-commerce seaport, Baltimore maintains a strong feeling of the past, typified by the many charming neighborhoods of restored houses and an abundance of historic monuments and buildings. Within easy walking distance of the campus is the nationally acclaimed Inner Harbor area where Harborplace, the National Aquarium, Maryland Science Center, and the Pier 6 Pavilion share the festival atmosphere of the harbor with hotels, shops and restaurants, water taxis, and pleasure and tour boats. Both restored and newly constructed townhouses and condominium complexes share the waterfronts, excitement and atmosphere of downtown living.

Warm weather months signal festival time in Baltimore with such annual offerings as Preakness Festival Week, Artscape, the Baltimore City Fair, the Flower Mart and the many ethnic festivals that celebrate the city's diverse populations. As a cultural center, Baltimore has offerings to please the most discriminating tastes, including a world-class symphony orchestra, excellent museums and libraries, professional theater, ballet and opera.

For sports fans Baltimore boasts a varied menu. Offerings include American League Baseball with the Orioles, professional football with the NFL Ravens, indoor soccer and ice hockey, NCAA and club lacrosse, horseracing and steeplechase and polo in the suburban counties. The home of the Baltimore Orioles, Oriole Park at Camden Yards, is but a two-block stroll from our campus, and the PSI Net Stadium, home of the Super Bowl Champion Baltimore Ravens, is immediately adjacent to Camden Yards. There are numerous public golf courses in the city and surrounding counties, and the Baltimore harbor and nearby Chesapeake Bay offer unparalleled opportunities for boating, fishing and water sports. Gastronomy aficionados will delight in experiencing the seafood for which the region is famous.



Admissions Information

Application

The University of Maryland School of Medicine is a participant in the American Medical College Application Service (AMCAS). All requests for a place in the first-year class must be initiated by an AMCAS application. AMCAS application request cards can be obtained from AMCAS, Section for Student Services, Association of American Medical Colleges, 2501 M Street, NW, Lobby-26, Washington, DC 20037-1300. In addition, they are usually available from the premedical advisory office at the undergraduate college. AMCAS application material is ready for distribution about mid-May of the year in which an individual plans to submit an application to the School of Medicine.

For the School of Medicine, the AMCAS application is the first of a two-stage application process and is due in Washington by November 1. The Committee on Admissions thoroughly reviews the AMCAS application and, based on the information contained in it, determines whether the second stage (School of Medicine) application form will be sent. A non-refundable application fee (\$50), payable to the University of Maryland School of Medicine, is sent only with submission of the second stage application form, which is due by December 1. All applicants who are determined to be residents of the state of Maryland are invited to submit a second-stage application. Nonresidents will either be sent second-stage application material or will be informed that the Committee on Admissions cannot continue the application process.

The application form, supporting credentials and letters of recommendation should be filed as early as possible in the application period. Please do not have letters of recommendation sent prior to submission of the second-stage application.

The applicant must assume responsibility for assuring that all required materials and the completed application packet are filed with and received by the Committee on Admissions. The applicant is expected to respond truthfully and completely to all questions on the AMCAS and School of Medicine application forms. An applicant who provides false or misleading information may be denied admission or, if enrolled before discovery of irregularity in the application process, may be dismissed from the School.

Early Decision Program

The University of Maryland School of Medicine has an Early Decision Program for applicants who are sure that their first choice of medical schools is the University of Maryland. The Committee on Admissions interviews selected early decision applicants and makes a decision on these students before considering the regular pool of applicants. By applying for early decision, the highly qualified applicant avoids having to make numerous other applications. Applicants with less competitive academic credentials, or those without the support of their premedical advisor, are discouraged from applying through this program.

The early decision applicant must apply only to this school by the AMCAS deadline of August 1. Applicants must provide all supplementary information by September 1. Interviews will take place at the medical school between mid-August and late September. No one will be accepted without an interview. If offered a place by this School, the applicant cannot apply elsewhere. All decisions for this program are made by October 1.

The Committee on Admissions can make one of three decisions for each early decision applicant: 1) acceptance; 2) rejection; or 3) placement into the regular applicant pool for review at a later time. Each applicant will be notified promptly of the Committee on Admissions' decision so that those not accepted through this program can apply elsewhere.

Individuals who apply through the Early Decision Program cannot apply to any other medical school until they are notified that they have not been accepted through this program at the University of Maryland.

Applicant Selection Criteria

Academic achievement, extracurricular activities, personal characteristics, recommendations from the premedical committee or college instructors, scores on the Medical College Admissions Test (MCAT) and personal interview all are considered in the committee's evaluation of an applicant. Academic achievement and/or high MCAT scores do not in themselves ensure acceptance. Of significant concern to the Committee on Admissions are the applicant's character, personality and potential to perform as a medical student and as a future physician. Personal integrity, emotional maturity and stability, motivation, interests and activities outside the classroom and interpersonal and communication skills are all carefully evaluated. Candidates for the MD degree must have the attitudes, knowledge and skills to function in a broad variety of interpersonal situations and to render a wide spectrum of patient care. Proficiency in both written and spoken English is required. A copy of the School of Medicine's policy on Essential Requirements for Admission, Academic Advancement and Graduation is available upon request.

Applications from persons with outstanding credentials from other areas of the United States and Canada are welcome and will receive all possible consideration. Preference in the selection process is given to residents of the state of Maryland. Applications can be processed only from citizens of the United States and Canada or from individuals who reside in this country on a permanent resident visa. Occasionally an applicant residing in the United States holds a visa permitting him or her to live in the United States indefinitely and to establish residency in one of the states. Applications are accepted from these individuals. Those on a time-limited visa, such as a student visa, are not eligible for admission to the School of Medicine.

Admission to the First-Year Class

The student should plan a four-year undergraduate curriculum with a suitable arts or science major leading to a bachelor's degree. The Committee on Admissions encourages all applicants to pursue a course of study that is rigorous, scholarly and focused on areas that are intellectually challenging and interesting to the applicant. The Committee on Admissions seeks to admit students with diverse academic backgrounds.

A minimum of 90 semester hours of acceptable college credit is required, exclusive of physical education and military science. These must be earned in colleges or universities whose names appear on the current list of Accredited Institutions of Higher Education as compiled by the National Committee of Regional Accrediting Agencies of the United States. The only courses accepted are those that are approved for credit towards a degree by the university or college attended. Preparation at a foreign college or university must be supplemented by two years or more of work in an approved university or college in the United States.

Successful completion of the following courses and credits is required prior to matriculation at the School of Medicine:

Course	Semester Hours	
Biological sciences	8	with lab
General chemistry	8	with lab
Organic chemistry	8	with lab
General physics	8	with lab
English	6	

A grade of C or better is mandatory for all required courses.

No more than 60 hours can be accepted from accredited junior colleges and then only if these credits are validated by a college offering a Bachelor of Arts or Science degree. Advanced placement credits for science courses taken in high school may be accepted if the applicant's college (which grants the bachelor's degree) has given college credit for those courses. Other exceptions may be granted at the discretion of the Committee on Admissions.

Selected students who enter the School of Medicine from colleges that usually grant a baccalaureate degree after the successful completion of the first year of medical school are responsible for: (1) providing a certificate from the college or university certifying eligibility for this degree; and (2) meeting all requirements of the School of Medicine for advancement to the second year.

The MCAT must be taken no later than fall of the year preceding the desired year of entrance and must be taken within four years of the anticipated date of matriculation. Applicants should write to the MCAT Program Office, 2255 North Dubuque Road, PO Box 4056, Iowa City, Iowa, 52243, for further information and registration forms, or to the Committee on Admissions, University of Maryland School of Medicine, 655 W. Baltimore Street, BRB 1-005, Baltimore, Maryland, 21201, (410) 706-7478.

A letter of recommendation from the undergraduate premedical committee or an officially designated premedical advisor is required. If the applicant's undergraduate college or university does not have a premedical committee or advisor, three letters of recommendation are required from faculty who have taught the applicant. Two of these letters must come from instructors who have taught the applicant in the sciences. Applicants who have earned advanced degrees or who have been out of school for a significant length of time should submit a letter of recommendation from each component of their education or major work-related experience. Letters of recommendation should be submitted by individuals qualified to evaluate the applicant's accomplishments, productivity and character in an objective and critical manner. All letters of recommendation should be sent directly to the Committee on Admissions. They are not to be sent to AMCAS.

Each applicant's credentials are evaluated by the Committee on Admissions to determine if an interview is to be granted. All interviews are conducted at the University of Maryland School of Medicine. These interviews are scheduled in advance by invitation.

In its selection process, the Committee on Admissions must use the applicant's residency status that is in effect on the last day applications can be received (December 1). The University of Maryland Baltimore Office of Records and Registration is responsible for all decisions regarding residency. All questions, complaints and appeals regarding residency status should be directed to that office: 621 West Lombard Street, Baltimore, Maryland 21201-1575; (410) 706-7480, not to the School of Medicine Office of Admissions. Nonresidents who matriculate at the School of Medicine should plan to maintain that status throughout the four years of medical school. Current standards for reclassification to in-state status are rigorous and make reclassification difficult.

For further information regarding the admissions process in general, the applicant is referred to a booklet entitled "Medical School Admissions Requirements," which can be obtained from:

Association of American Medical Colleges
Membership and Publication Orders
2450 N Street, NW
Washington, DC 20037-1131

Advanced Standing Policy

Students who have attended a Liaison Committee on Medical Education (LCME) accredited medical school in the United States or Canada are eligible to file application for admission to the third year class only. Applications must be submitted between February 15 and May 1 of the desired year of admission. Applicants for advanced standing must meet all of the current first year entrance requirements and must present undergraduate credentials comparable to those of students in the third year class into which they are attempting to transfer. Applicants will be considered for transfer only if they have attended a medical school with a curriculum that is comparable to that offered at the University of Maryland School of Medicine. All applicants must pass Step I of the United States Medical Licensing Examination before they will be allowed to matriculate at the School of Medicine. Residents of Maryland will be given preference in the selection process. The number of transfers accepted will be limited by attrition.

All applicants must furnish letters of recommendation from the dean and faculty of the medical school where they are currently enrolled. No student who has been dismissed from any medical school will be eligible for advanced standing unless his/her former dean submits a letter addressed to the Committee on Admissions confirming that the student has been reinstated in good standing and is eligible for promotion. No student can be considered who is not eligible for promotion at the time of transfer.

Persons who already hold the degree of Doctor of Medicine cannot be admitted to the medical school as candidates for that degree from this University. Individuals whose graduate work has been in the fields of osteopathic medicine or podiatric medicine are not eligible for advanced standing. Individuals whose graduate work has been in the field of dentistry may apply for advanced standing through the Oral-Maxillofacial Surgery/MD Program. Information regarding the combined degree program can be obtained by writing to:

Dr. James Hupp
c/o Mrs. Antoinette Saunders
Advanced Dental Education
Office of Admissions and Student Affairs
Baltimore College of Dental Surgery
666 West Baltimore Street
Room 4-A-22
Baltimore, MD 21201

Financial Information

Determination of In-State Status

An initial determination of in-state status for admission, tuition and charge-differential purposes will be made by the university at the time a student's application for admission is under consideration.

The University of Maryland Baltimore Policy for Student Residency Classification for Admission, Tuition and Charge-Differential Purposes was changed effective with the fall 1991 semester. There are several significant changes in the criteria for determining eligibility for in-state status. Students currently classified as nonresidents are encouraged to review this policy. Copies of the policy are available at the Registrar's Office, Office of Records and Registration, room 326, Baltimore Student Union, (410) 706-7480.

Tuition and Fees (1998-99 academic year schedule)

	Per Semester	Per Year
Application Fee/Matriculation Fee *	\$	\$ 50.00
Tuition—In-State	6,772.50	13,545.00
Tuition—Out-of-State	12,960.50	25,921.00
Student Activities Fee	37.50	75.00
Transportation Fee	13.00	26.00
Hospital Insurance (Individual) **	514.00	1,028.00
Student Liability Insurance ***	—	260.00
Supporting Facilities Fee	158.50	317.00
Disability Insurance	11.80	23.60
Dormitory Fee **** Contact Housing		
Graduation Fee—Seniors		45.00
Student Government Fee	7.50	15.00
Hepatitis Vaccine (First Year)		150.00
TB Screening	10.00	
Laptop Computer - First Year	625.00	1,250.00
Second Year	750.00	1,500.00
(Billed for four semesters)		
Late Payment Fee 5% or \$100.00 Maximum		

* An application fee of \$50 should be submitted with the formal application to the School of Medicine. This fee will be applied against the matriculation fee for accepted students. A partial tuition prepayment may be required before matriculation.

** Hospital insurance is required of all full-time students. A brief outline of the student health insurance program is furnished to each student. Students with equivalent insurance coverage must provide proof of such coverage by September 15 for fall registration and by February 15 for spring registration to Student and Employee Health at the time of registration to obtain a hospital insurance waiver. Rates quoted are subject to change.

*** Student liability (malpractice) insurance is required of all students.

**** Rate based on 10-month year. Transient rates available for summer.

NOTE: Costs are subject to change without prior notice.

Fees

The application and/or matriculation fee partially defrays the cost of processing applications for admission and enrollment data in the professional schools. These fees are not refundable.

The tuition charges meet a portion of the costs for the educational program and supporting services.

Student activities fees are used to meet the costs of various student activities, student publications and cultural programs. The Student Government Association, in cooperation with the Dean's Office, recommends expenditure of the fees collected.

The supporting facilities fee is used in support of the expansion of various facilities on campus that are not funded or are partially funded through other sources.

The transportation fee helps to expand and enhance parking and shuttle services.

Diploma fees are charged to help defray costs involved with graduation and commencement.

Tuition and fees are due prior to the first day of class or a late payment fee of 5 percent, not to exceed \$100, will be automatically added to the bill. On or before the due date, an installment payment plan is available to students with a balance over \$500. The plan divides payments into three equal installments, the first paid by the due date and the balance in succeeding 30-day installments. The installment payment plan must be arranged in person in the student accounting office.

All checks and money orders should be made payable to the University of Maryland for the exact amount of the actual bill.

A service charge is assessed for dishonored checks returned unpaid by the drawee bank because of insufficient funds, stopped payment, postdating or drawn against uncollected items.

- For checks up to \$24.99—\$5 service charge
- For checks from \$25 and up—\$25 service charge

Late registration fees defray the cost of special handling involved for those who do not complete their registration on the prescribed days. No diploma, certificate or transcript will be issued to a student until all financial obligations to the University have been satisfied.

The University reserves the right to make such changes in fees and other charges as may be necessary.

Registration

To attend classes at the University of Maryland Baltimore campus it is necessary to process an official registration. All students are required to register each term in accordance with current registration procedures. The balance of tuition and fees is due and payable on the dates specified for registration. Registration is not completed until all financial obligations are satisfied. Students who do not complete their registration, including the payment of their bill on the registration days, will be subject to a late registration fee.

Courses taken concurrently with a University of Maryland Baltimore registration at another campus or institution must have program approval in advance by the appropriate University of Maryland Baltimore officials. Off-campus registration forms are available in each dean's office and in the Office of Records and Registration.

Although the University regularly mails bills to advance-registered students, it cannot assume responsibility of their receipt. If any student does not receive a bill prior to the beginning of a semester in which he or she has advance-registered, it is that student's responsibility to contact student accounting in the Administration Building during normal business hours.

Students who arena-register or advance-register and subsequently decide not to attend must notify the Office of Records and Registration, room 326, Baltimore Student Union, in writing, prior to the first day of instruction. If this office has not received a request for cancellation by 5:00 p.m. of the last day before instruction begins, the university will assume the student plans to attend and accepts the financial obligation.

After classes begin, students who wish to terminate their registration must submit an application for withdrawal to the Office of Records and Registration. Students are liable for all charges applicable at the time of the withdrawal.

If a satisfactory settlement or agreement for settlement is not made with the business office within 10 days after a payment is due, the student is automatically barred from attendance at classes and will forfeit the other privileges of the School of Medicine.

Withdrawal

Students who wish to leave the School of Medicine at any time during the academic year are required to file a letter of resignation with the dean. In addition, an Application for Withdrawal form bearing the proper signatures must be filed with the Office of Records and Registration. The student must satisfy the authorities that he or she has no outstanding obligations to the school and must return his or her student identification card.

If the above procedures are not completed, the student will not be entitled to honorable dismissal and will forfeit the right to any refunds to which that student would otherwise be entitled. The date used in computing refunds is the date the Application for Withdrawal is signed by the dean.

Academic Standing

Students who voluntarily withdraw during an academic semester will be given no credit. Students are not permitted to resort to withdrawal in order to preclude current or impending failures. Their standing on withdrawal will be recorded at the Office of Records and Registration. Students who withdraw from the medical school and later desire readmission must apply to the Committee on Admissions unless other arrangements have been made with the dean's written consent.

Refunds

Refund requests of students officially withdrawing from the school must be processed through the Office of Records and Registration. The amount of tuition and fees to be refunded to the student is dependent on time completed in the relevant semester.

In accordance with federal regulations, there are two refund policies in effect at the University of Maryland Baltimore.

I. First-time students

- A. Students who have registered and are attending UMB for the first time; i.e., who have registered for their first semester on this campus, and withdraw on or before the sixty percent point of enrollment (e.g., during or before the ninth week of a fifteen-week semester) will be refunded according to the required pro rata formula. (After the sixty percent point in the semester, no refund is due the student).

- B. Pro rata refunds require the University to return an amount proportional to the portion of the enrollment not yet completed by the student. In the case of uneven portions of enrollment remaining, the refund is rounded down to the nearest ten percent. Any unpaid charges are deducted from the refund amount. If the student has received aid for the semester, the aid is repaid first; any remaining balance goes to the student.

II. All students not first-time

- A. Students not enrolled in their first semester are eligible for refunds upon withdrawal according to the following schedule:
- Withdrawal on or before the first scheduled day of class; 100% refund and cancellation of registration.
 - Withdrawal after the first scheduled day or class through 10% of the semester — 90% refund.
 - Withdrawal after the first 10% through the first 25% of the semester — 50% refund.
 - Withdrawal after the first 25% through the first 50% of the semester — 25% refund.
 - Withdrawal after the first 50% of the semester — no refund.
- Schedules indicating the cut-off dates each semester for every level of refund will be made available by the Office of Student Accounts.
- B. Withdrawing students who received financial aid to pay for the tuition and fees assessed will have refunds returned to the aid program from which the charges were paid in the following order:

Federal Unsubsidized Stafford Loan
Federal Subsidized Stafford Loan
Federal PLUS Loan
Federal Perkins Loan
Federal Pell Grant
Federal Supplemental Education Opportunity Grant
Institutional Loans, HPSL, etc.
Maryland State Scholarship Programs
Institutional Scholarship Programs
Private Scholarship Programs

- Refund amounts over and above those amounts repaid to the various aid programs will be returned to the student.
- In calculating the federal refund, any unpaid charges owed by the student will remain as the student's responsibility and will not be covered by any federal aid received.

Additional Notes:

- Aid that has been awarded and certified before the withdrawal date may be used to pay required tuition and fees, even if it has not yet been disbursed.
- Federal financial aid recipients who cease to attend classes without officially withdrawing through the Office of Records and Registration will have an unofficial withdrawal date determined for them by the financial aid office on a case-by-case basis, and that date will then be used in calculating the refund.

Leaves of Absence

Students who are in good standing may be granted a one-year leave of absence with permission from the dean. Longer leaves can be arranged only under special circumstances with the exception of those students in the combined MD/PhD program.

Required Equipment

Dissecting Instruments: At the beginning of the first year, all freshmen must possess a complete set of dissecting instruments similar to those on display at the campus bookstore.

Laptop Computer: Entering freshman will be required to purchase/lease a laptop computer from the University of Maryland. Information regarding specific system requirements and purchasing, leasing and financing options will be provided in June each year. Students are advised not to purchase a laptop computer outside the University.

Microscope: Microscopes will be provided by the medical school.

Other Equipment: By the second year, medical students are required to have an ophthalmoscope, otoscope, a blood pressure cuff and stethoscope. The estimated cost of these items, plus other essentials such as lab coats, is \$400 to \$450.

Financial Assistance

The School of Medicine's financial aid program is available to medical students who demonstrate financial need. Aid programs are centrally administered by the Office of Student Financial Aid, located in the Baltimore Student Union. To qualify for aid, students must apply annually and continue to meet certain eligibility requirements. To apply for financial aid, complete a Free Application for Federal Student Aid (FAFSA) and send it to the Federal Processing Center or apply online at www.fafsa.ed.gov. To obtain an application, call or visit the Office of Student Financial Aid.

Student Financial Aid
University of Maryland Baltimore
621 West Lombard Street
BSU Room #334
Baltimore, Maryland 21201
(410) 706-7347
Email: aidtalk@umaryland.edu

Aid packages often include a combination of loans, grants, scholarships and part-time employment designed to meet a student's needs. In addition to school resources, outside funding agencies make financial assistance available to qualified medical students. Priority filing date is March 15.

Student assistance is awarded on the basis of demonstrated financial need. Eligibility for financial aid is dependent upon the student maintaining satisfactory academic progress. When determining the amount to be awarded, the following are considered: (1) income, assets and resources

of the student; (2) support available to the student from non-university sources; and (3) the costs reasonably necessary for full-time attendance at the school. Some programs also consider income, assets and resources of the student's parents.

University and Medical School Funds

University Grants: Need-based grants awarded by Financial Aid Office.

Medical Alumni Association: Interest-free loans are available to students on the basis of financial need.

Private and Endowment Funds: From bequests and private donations, the School of Medicine has established private and endowment accounts to provide fellowships, scholarships and loans for students on the basis of their academic achievement and financial need. The amounts of these fellowships, scholarships and loans vary and are awarded on an annual basis in accordance with school policy.

The availability of support from each of the funds listed below is dependent upon the income generated. Moreover, since many of the funds are governed by specific provisions set forth by the donors, awards must be made accordingly.

SCHOLARSHIPS

APPM Auxiliary Scholarship
Balder Scholarship Fund
James E. Bond Memorial Fund
Dr. Robert W. Buxton Scholarship
Class of 1969 Scholarship Fund
Percy M. Chaimson Scholarship Fund
Israel and Cecilia E. Cohen Scholarship
Dr. William H. Crim Scholarship
Isaac C. Dickson Scholarship Fund
Dodge Fund
Marcia Thomas Duncan Medical Scholarship
A. Lee Ellis Scholarship
Arthur Wright Erskine Scholarship
Dr. John E. Esnard Endowment
Sharon Fox Scholarship
Samuel Leon Frank Scholarship
Milton Ginsberg Scholarship Fund
Harry Gudelsky Fund
Horace Bruce Hetrick Scholarship
Margaret A. Hicks Scholarship
Charles M. Hitchcock Scholarship
Donald J. Hobart Scholarship
G. D. Jackson Scholarship
Leo Karlinski Scholarship
Elsie Larrimore Scholarship
Emmett and Ruth Light Scholarship
Dr. Alex J. and Clara Maysels Scholarship
Dr. James N. McCosh, Jr. Memorial Scholarship

Nataro Family Scholarship Fund
Frederick and Anne Nichols and Edwina Justin Fund
Henry Rolando Scholarship Fund
Morton and Elaine Schwartz Scholarship
David Street Memorial Scholarship
Dr. Charles Robert Thomas
Michael Vinciquerra Trust Scholarship
Clarence and Geneva Warfield Scholarship
Walter N. Winters Scholarship
Randolph Winslow Scholarship
W. R. Winslow Residency Trust
Henry Zoller, Jr. Scholarship

LOAN FUNDS

Balder Foundation Fund
Class of 1916 Memorial Loan Fund
Class of 1935 Student Loan Fund
Jay W. Eaton Loan Fund
Dr. Wetherbee Fort Loan Fund
Gold-Steinberg Memorial Loan Fund
Isaac Gutman Loan Fund
Sean Peter Houlihan Memorial Fund
Robert Wood Johnson Foundation Loan Fund
W.K. Kellogg Loan Fund
William and Sarah Kraut Loan Fund
Michael H. Lipman Loan Fund
Joseph Lipskey Loan Fund
Jacob B. and Shirley K. Mandel Loan
Drs. Charles W. and Kathleen R. McGrady Student Loan Fund
Medical Alumni Association Student Loan Fund
Edward and Lina Meirhoff Loan Fund
Dr. William B. Rogers Student Loan Fund
Jessie Smith Noyes Loan Fund
Charles Pfizer Loan Fund
Dr. F. Mason Sones Jr. Memorial Student Loan Fund
Webster M. Strayer Loan Fund
Jimmie Swartz Foundation Loan Fund
Jay Whitman Memorial Student Loan Fund

Outside Sources

Central Scholarship Bureau offers interest-free loans in amounts up to \$3,500 per year (maximum total of \$8,000) to qualified Baltimore City and Baltimore County residents.

Central Scholarship Bureau
c/o #108 Bristol House Apartments
4001 Clarks Lane
Baltimore, Maryland 21215
(410) 358-8668

Primary Care Loans may equal tuition plus \$2,500 annually. Interest accrual at 5 percent and principal payments are deferred until one year after graduation at which time both interest and principal payments begin. Both interest and principal may also be deferred for internships and residencies and for up to three years of service in the uniformed services (including National Health Service Corps) and the Peace Corps. Interest accrues from beginning of repayment period. Recipients must enter and complete a residency training program in primary health care no later than four years after graduation from the institution. Recipients must also practice primary health care until the loan is repaid in full and provide annual certification that they are practicing primary health care. Primary health care is defined as family medicine, general internal medicine, general pediatrics, preventive medicine or osteopathic general practice.

Maryland State Scholarship Administration offers one-year Maryland Professional School Scholarships of \$200-\$1,000, which can be sought for subsequent years by proper reapplication. Senatorial and House of Delegates awards are also available. To apply, students should complete the Federal Renewal Free Application for Federal Student Aid or the Free Application for Federal Student Aid.

National Medical Fellowships are need-based awards to minority medical students. For further information and applications write:

National Medical Fellowships
250 West 57th Street
New York, New York 10019

Federal Work-Study Program provides jobs for students who need financial aid and who choose to earn part of their educational expenses. Jobs are arranged either on or off campus with a public or private nonprofit agency. Eligible students may be employed for as many as 20 hours per week. To be eligible for Federal Work-Study a student must apply for financial aid and demonstrate financial need.

Federal Perkins Loans (formerly known as National Defense/Direct Student Loans) are made by the University to students. The aggregate legal loan maximum is \$30,000 (including undergraduate borrowing). The annual interest rate is 5 percent. Interest does not accrue until repayment begins.

Federal Subsidized Stafford Loans (formerly Guaranteed Student Loans) are made by private lenders. The annual legal loan maximum for graduate students is \$8,500. The aggregate loan limit is \$65,500 including graduate and undergraduate debt. Current interest rate for new borrowers will be variable, but not higher than 8.25 percent. Interest does not accrue until repayment begins.

Federal Unsubsidized Stafford Loans are made by private lenders. Medical students may borrow up to \$30,000 a year with an aggregate limit of \$179,000. The interest rate is variable and will be adjusted annually, with a 8.25 percent cap. Interest will accrue on the loan from the date of disbursement and may be paid quarterly or annually, or will be capitalized.

Alternative Loans are designed to meet the remaining student's eligibility after both Federal Subsidized and Unsubsidized Stafford Loans have been borrowed. Alternative loans are credit based. Students are strongly encouraged not to borrow this loan unless absolutely necessary.

Federal regulations governing financial aid are subject to change, and it is suggested that interested applicants contact the Financial Aid Office to ensure having the most recent information.



Academic Information

Accreditation

The University of Maryland Baltimore is accredited by the Middle States Association of Colleges and Schools. The School of Medicine is accredited by the Liaison Committee on Medical Education, the accrediting body for the Association of American Medical Colleges and the American Medical Association.

General Rules

- The University of Maryland School of Medicine authorities reserve the right to make changes in requirements for admission, curriculum, standards for advancement and graduation, fees and rules and regulations.
- Matriculants are required to accept the provisions of the Judicial Board and agree to assume its obligations prior to registration.
- Students who report for classes later than one week after the scheduled time will be permitted to begin work only by permission of the dean. Attendance at all scheduled classes is expected.
- Notice of change of address should be submitted promptly to the Office of Student Affairs and to the Office of the Registrar.
- All new students, whether they are admitted to the first-year class or with advanced standing, are expected to attend an orientation for new students.

Grades and Promotion

Final grades for courses in all four years are recorded as follows unless otherwise specified by course director:

- A** Excellent
- B** Very Good
- C** Satisfactory
- D** Unsatisfactory — “D” grades are remediable only by examination or other appropriate remediation with a maximum grade of “C” possible on the portion of the course remediated. The final grade will be determined by the course director.
- F** Fail — Requires repeat of the course or an approved equivalent.

Inc Incomplete — This designation is used only when mitigating circumstances exist; e.g., illness or unavoidable absence has prevented the student from completing the course on time. It is to be viewed as a non-prejudicial entry on the student’s record; the grade “Inc” remains on the official student transcript.

An award of “Honors” is given to a student who receives a final grade of “A” and performs at a clearly outstanding level and/or who performs an additional scholarly effort. Specific criteria for honors are determined by the course director or course committee.

Other grading policies by specific courses such as Pass/Fail grading are announced to the class at the beginning of the course.

In addition to the final objective grade and the "Honors" category, the student's overall performance is evaluated subjectively. The new curriculum, with added small group activities and problem-based learning groups, allows for such assessment in the basic science years. Clinical years' activities are in small groups with close mentoring. A passing grade in any course may be contingent upon a certain level of attendance and participation above and beyond examination performance. Appropriate evaluation forms are designed for this purpose.

Established rules for advancement and dismissal during all four years have been approved by the faculty and student body representatives of the School of Medicine Council. All regulations related to grading, advancement and dismissal are included in the Academic Handbook given to all entering students at orientation.

The faculty reserves the right to determine whether a student may withdraw, repeat, advance or graduate on academic or moral and personal grounds, including traits of character.

Equal Opportunity

The University of Maryland Baltimore is actively committed to providing equal educational and employment opportunity in all of its programs. It is the goal of the University to assure that women and minorities are equitably represented among the faculty, staff and administration of the university, so that its work force reflects the diversity of Maryland's population.

All employment policies and activities of the University of Maryland Baltimore shall be consistent with federal and state laws, regulations and executive orders on nondiscrimination on the basis of race, color, religion, age, ancestry or national origin, sex, sexual orientation, handicap, marital status and veteran status. Sexual harassment, as a form of sex discrimination, is prohibited among the work force of the university.

Unethical Conduct

In order to matriculate and/or graduate, students must be of good moral character, consistent with the licensure requirements of the state of Maryland for physicians, and must demonstrate character traits consistent with competent performance as a physician. The school reserves the right to dismiss or fail to graduate any student whose actions or overall academic performance, including clinical performance, do not demonstrate good moral character and ability to function effectively as a physician. Such action may be taken notwithstanding a student's compliance with standards for advancement and graduation set out in the School of Medicine grading policy.

Graduation Rate

The School of Medicine's graduation rate is 97%. This figure represents those students actively pursuing their MD degree. They do not include those students in the MD/PhD track (usually six years) or those students who are granted a year off to engage in research, etc.

Salary and Employment Information

A high percentage of graduates enter the practice of medicine after completion of residency training. There appears to be a moderate excess of physicians in some disciplines of medicine and in some geographic areas. However, the overall need for persons holding the MD degree is such that all graduates of the School of Medicine may expect a satisfactory income.

Prizes and Awards

- American Medical Women's Association Scholarship Achievement Awards are presented to women students who graduate in the top 10% of their class, or, under the non-graded system, are honor graduates.
- The Elijah Adams Award for Excellence in Biological Chemistry is presented to the freshman medical student who has achieved an honors grade in the biochemistry and molecular biology course and has written a paper judged of the highest quality by the faculty of the department.
- The Wayne W. Babcock Award for Excellence in Surgery is awarded to a graduating senior for outstanding performance in surgery.
- The Balder Scholarship Award for Outstanding Academic Achievement is presented to the graduating senior with the highest academic record throughout the medical course.
- The Leslie B. Barnett Memorial Medical Student Research Fellowship is a competitive award to provide funding for a student to conduct research.
- The Eugene Sydney Bereston Award for Excellence in Dermatology is awarded to the graduate with outstanding accomplishments and interests in dermatology.
- The J. Edmund Bradley Award for Excellence in Pediatrics recognizes the graduate with both the leading academic record in pediatrics and the characteristics most admired in a pediatrician.
- The Eugene B. Brody Award for Excellence in Psychotherapy honors a graduate with outstanding skill in psychotherapy.
- The C. Jellef Carr Award for Excellence in Pharmacology is presented to the sophomore medical student who has achieved an honors grade in the medical pharmacology course and has written a paper judged of the highest quality by the faculty of the department.
- The Louis, Ida and Samuel Cohen Award for Personal Attributes of Scholarship, Ability and Compassion for Patients is presented to a graduate with superior scholarship and scientific knowledge of internal medicine and understanding and compassion for patients.
- The Dean's Award for Excellence in Research is presented to the graduating senior who has performed the most notable research during the course of the standard MD program.
- The Donaldson Prize for Excellence in Pathology honors the graduating senior who has demonstrated excellence in didactic and laboratory work in the discipline of pathology.

- The Louis Harriman Douglass Award for Excellence in Obstetrics and Gynecology recognizes the graduating senior with an outstanding academic record and a particular interest in obstetrics and gynecology.
- The Robley Dunglison Award for Excellence in Preventive Medicine honors the graduating student who has demonstrated outstanding competence in the fields of preventive medicine and public health.
- The Society for Academic Emergency Medicine Award for Excellence in Emergency Medicine recognizes the senior who has captured the essence of the ideal emergency physician by demonstrating high skill, equanimity and kindness in an environment which requires quick, clear thinking and action.
- The Faculty Gold Medal for Outstanding Qualifications for the Practice of Medicine honors a graduate with outstanding scholarly accomplishments and those qualities of humanity and dedication most desirable in a physician.
- The Jacob Finesinger Award for Excellence in Psychiatry honors the graduate who has demonstrated outstanding skills in general psychiatry.
- The Harlan I. Firminger Award for Excellence in General and Systemic Pathology is presented to the student with the highest performance in the sophomore pathology course.
- The A. Bradley Gaither Memorial Award for Excellence in Genito-Urinary Surgery recognizes the graduate who excelled during the senior clerkship in genito-urinary surgery.
- The Geriatrics and Gerontology Education and Research Program Award for Excellence in the field of aging recognizes a professional undergraduate or graduate student who has demonstrated outstanding interest and commitment to the care of older persons.
- The Dr. Sheldon E. Greisman Award is presented to the student whose performance in the first-year physiology course is deemed outstanding.
- The Dr. Jeremy Hallisey Prize awarded at commencement to graduating students pursuing a career in anesthesiology who best demonstrate the quality of compassion. Provided no graduating seniors pursuing a career in anesthesiology, the prize shall be awarded to graduating seniors pursuing a career in surgery who best demonstrates the quality of compassion.
- The William Alexander Hammond Award for Excellence in Neurology is awarded to the graduating senior with outstanding accomplishments in neurology.
- The Healthcare Foundation of New Jersey Humanism in Medicine Awards is given to a graduating senior who promotes the integration of humanism in the delivery of care to patients and their families.
- The Dr. Martin Helrich Prize for Excellence in Anesthesiology recognizes the graduate with the highest academic distinction during the senior clerkship in anesthesiology.

- The Dr. Leonard M. Hummel Memorial Award for Excellence in Internal Medicine honors a graduate with outstanding qualifications in internal medicine.
- The William D. Kaplan, MD award is presented to a graduating senior who best combines humanism with the clinical study of medicine.
- The Edward J. Kowalewski Award for Excellence in Education and Training in Family Practice is presented to the fourth-year student who has demonstrated special interest and high academic achievement in family practice.
- The Abraham Lilienfeld Award in Epidemiology and Biostatistics is awarded to the graduating student with an outstanding performance in the courses given by the department in the first two years of medical school.
- The William H. Mosberg, Jr., MD Award for Neurosurgery is awarded at commencement to a student who demonstrates academic excellence as well as personal distinction.
- The Dr. I. Earl Pass Memorial Award for Exceptional Proficiency in Internal Medicine recognizes a member of the graduating class with an outstanding performance in medicine.
- The Dr. Milton S. Sacks Award in Hematology is awarded to the graduate with the most distinguished record in hematology.
- The Society for Academic Emergency Medicine Award for Excellence in Emergency Medicine is given to the senior medical student who has captured the essence of the ideal emergency physician by demonstrating high skill, equanimity, and kindness in an environment which requires quick, clear thinking and action.
- The Student National Medical Association Service Award is presented to the graduating senior who has demonstrated leadership in the Student National Medical Association and made outstanding contributions to the minority community.
- The Summa, Magna and Cum Laude Awards of Honor are presented to those candidates for graduation who have exhibited outstanding qualifications for the practice of medicine during their four academic years.
- The Uhlenhuth Award for Excellence in the Anatomical Sciences is awarded in recognition of the graduate with the highest academic record in the anatomical sciences.
- The Rudolf Virchow Award for Research in Pathology is awarded to graduates who have made outstanding contributions to research in the field of pathology.
- The Joseph E. Whitley Award is given for academic excellence in radiology.
- The Hans R. Wilhelmsen Prize for Outstanding Achievement in Surgery is awarded to the graduate with the highest academic record in surgery.
- The Charles L. Wisseman Jr., Award for Excellence in Microbiology and Immunology is presented to the student with the highest academic record in microbiology.

- The Theodore E. Woodward Prize in Internal Medicine is the highest award in internal medicine. It is presented to the graduate who has an excellent academic record in the discipline of internal medicine and has displayed the attributes of compassion and dedication in the care of patients.
- The Theodore E. Woodward Award in Physical Diagnosis is awarded at commencement to the graduate whose sophomore performance in physical diagnosis best exemplified the desirable combination of factual information, clinical skills and humanity, and characteristics of an accomplished physician.

Graduation with Honors

Grade point averages (GPA's) are computed in this medical school for two purposes only: nomination of students for election to Alpha Omega Alpha Honor Society (AOA) and for determination of commencement honors. GPA's are not made public or reported to residency programs. The GPA is calculated on a scale of 1-to-5 with 1 = C, 3 = B and 5 = A. The third year is given a somewhat higher weighting than the first two years for purposes of determining commencement honors. Although grades of honors are not computed into the GPA, students must have a minimum number of honors grades on their transcript in order to be eligible for graduation with honors. Grades from courses taken during the senior year are not counted numerically in determination of graduation honors.

Professionalism in Medicine

As changes in our nation's healthcare and healthcare delivery systems continue to occur, professionalism in medicine is increasingly debated. There are some who say that physicians are losing their professionalism in our highly technical and managed care environment. Medicine has gone through a dramatic transformation over the last four decades; science has raced ahead with astonishing speed to close in on some of the fundamental mysteries of life.

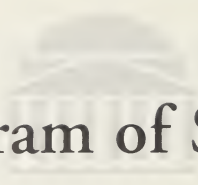
With the advancement of technology and changing market forces, medicine has become complicated and somewhat institutionalized. The health care marketplace is pressuring physicians to cut costs, increase productivity and support the bottom line. The primacy of the patient-physician relationship is being sorely tested. We will emphasize the importance of professionalism in our medical school curriculum to ensure that all students understand professionalism and accept its obligations. Developing effective physician/patient relationships will become of paramount importance. Now we even struggle with definitions of what is a profession? James M. Gustafson described a profession as follows:

- A profession is characterized by mastery of an extensive body of technical knowledge and concepts or theories that explain that knowledge and guide its applications to different circumstances,
- Professions are institutionalized, and thus there are many social controls over professional activity, and,
- Professions are service oriented. They exist to meet particular human needs of individuals and communities.

One of Abraham Flexner's concepts of professionalism, paraphrased by Dr. Richard Foa was "profession will tend to exist or 'be contrived' to achieve societally defined goals rather than to serve the self-interests of its members. Professions are to be 'increasingly altruistic in motivation.'"

Students must be prepared to deal with all the competing forces of a rapidly changing health care system, and demonstrate the qualities of professionalism during medical school and throughout their careers. It must be clear that we are committed to the best outcome for the patient. Each student must be constantly on guard to protect, defend and advocate for patients. The common ground on which all physicians must stand is that the needs of our patients must come first and foremost.

Each year the School of Medicine holds a White Coat Ceremony, where first-year medical students receive their white coats, as a symbol marking the beginning of their new role as a medical healer and emphasizing the responsibility they are accepting for the care and healing of patients. We constantly re-enforce the importance of professionalism, and remind ourselves that as physicians we are granted extraordinary powers by patients and by society.



Program of Study

Broadly stated, the educational objectives of the School of Medicine are:

- To educate students intensively and broadly in the clinical and scientific aspects of medicine.
- To prepare students to engage in a lifetime of learning in order that they may successfully adapt to a changing world.
- To achieve a high level of professional competence and social awareness.
- To provide opportunities for students at every level of training to pursue areas of special interest for intellectual stimulation and/or career advancement.
- To encourage the development of highly competent primary care physicians, clinical specialists and scholars in basic and clinical research, teaching, and academic administration.

Curriculum

First and Second Years: The freshman year begins with a three-day course on “Informatics,” introducing students to the use of information technology in medicine that will assist learning, research and clinical applications. This is followed by a nine-week block on “Structure and Development,” which offers a comprehensive overview on the morphological and developmental organization of the body. Next comes the one-week “Human Behavior” block taught in an interdisciplinary manner, highlighting the importance of behavior in the prevention, incidence, prevalence, diagnosis, treatment and prognosis of wellness and illness. Following this, a nine-week block, “Cell and Molecular Biology,” presents the fundamentals of biochemistry, cell biology, molecular biology and human genetics and correlates them with clinical issues. Next is a two-week block of “Cell Function,” an introductory block for the two blocks that follow. Next is a six-week interdisciplinary course on the “Neurosciences” describing basic concepts of neuroanatomy, neurochemistry, neurophysiology and clinical neurology. The final block, “Functional Systems,” runs for eight weeks, providing the freshman student with the basic understanding of human physiology in the areas of cellular, cardiovascular, renal, respiratory, gastrointestinal, endocrine and integrative physiology. Each is integrated with clinical applications. The general format is two hours of lecture per day and two hours of small group or laboratory work per day. Running concurrently with the blocks are, “Introduction to Clinical Practice” (ICP) and problem-based learning, both using small group teaching methods.

The integrated curriculum continues in the second year when sophomore students take two blocks which include Host Defenses and Infectious Diseases (10 weeks) and Pathophysiology and Therapeutics (24 weeks). The more lengthy block, Pathophysiology and Therapeutics, contains neuroscience and psychiatry, cardiovascular, gastrointestinal, reproductive, pulmonary, renal, endocrine, neoplasia, locomotive and hemopoietic sections. The sophomore year is characterized again by two hours of lecture per day, two hours of small group or laboratory per day, problem-based learning sessions, and ICP focusing on physical diagnosis.

Third and Fourth Years. The two clinical years are viewed as a single unit with the student assuming progressive responsibility for patient care. The clinical experience consists of the following clerkships: Medicine (12 weeks), Surgery (8 weeks), Family Medicine (4 weeks), Obstetrics, Gynecology and Reproductive Sciences (6 weeks), Pediatrics (6 weeks),

Psychiatry/Neurology (8 weeks), plus a four-week elective. As noted, students take all of these rotations according to individual schedules. The sum of these experiences provides a 48-week introduction to clinical science.

The 32-week block that follows includes four four-week electives. The student may take eight weeks of electives off-campus. An additional eight weeks must be spent in a student internship in one of four clinical fields: medicine, surgery, pediatrics or family practice. Here the student has an opportunity for primary patient care responsibility over a prolonged period of time. These rotations are offered at the University of Maryland Medical System and in approved affiliated hospitals. The third segment is a consecutive eight-week experience in an ambulatory setting. The ambulatory rotation is designed to be completed in a rural or underserved area supplemented by teaching in preventive medicine. Attendance in all course work in clinical areas is mandatory. The current clinical curriculum frequently involves weekend attendance. The student may audit available electives in any additional free time.

During the third year, one-half day per week will be allotted to longitudinal ambulatory education. This primary care experience will occur in the offices of general internists, family practitioners, pediatricians and obstetrician-gynecologists. The experience will occur concurrently with the required third-year clerkships. Students will be with the same physician over the one-year period. The course will expose the student to the principals of primary care and preventive medicine, including evaluation of patients with undifferentiated problems, longitudinal care and continuous care.

The 80-week combined clinical years program provides a strong grounding in clinical science with a progressive opportunity for primary patient care responsibility. The curriculum is designed to prepare the medical student for the increasing responsibility demanded by the specialty residency programs throughout the country.

The Curriculum Coordinating Committee, composed of course and clerkship leaders, key faculty educators and student body representatives, has the responsibility of regularly monitoring and reviewing the curriculum and recommending changes deemed appropriate.

Curriculum at a Glance

CURRICULUM ORGANIZATION

Year I	37 weeks
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COURSE	TITLE
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I	MEDICAL INFORMATICS
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(1 week)

Participating departments/divisions: Office of Medical Education, UMB Information Services and the Health Sciences and Human Services Library, the Departments of Anatomy and Neurobiology, Psychiatry and Diagnostic Radiology, selected UMB faculty and guest speakers

Areas of Study: Computing, electronic resource databases, e-mail, information management, internet, hospital systems, UMB Network

II	STRUCTURE AND DEVELOPMENT
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(9 weeks, 4 days)

Participating departments/divisions: Anatomy and Neurobiology, Surgery, Diagnostic Radiology

Areas of study: Human gross anatomy, embryology and histology

COURSE	TITLE
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III	HUMAN BEHAVIOR
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(1 week)

Participating departments/divisions: Psychiatry, Medicine, Pediatrics
Areas of study: Integrates information about human behavior from the biological, behavioral, and social sciences as it applies to health, illness, and treatment across the lifespan in our multicultural environment.

IV	CELL AND MOLECULAR BIOLOGY
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(9 weeks, 2 days)

Participating departments/divisions: Biochemistry and Molecular Biology, Medicine, Human Genetics, Anatomy and Neurobiology, Pharmacology and Experimental Therapeutics, Cancer Center
Areas of Study: Protein structure and function, cellular metabolic pathways, cell signal transduction, cell microanatomy, human genetics, molecular biology

V	CELL FUNCTION SECTION OF FUNCTIONAL SYSTEMS
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(2 weeks)

Participating departments/divisions: Physiology, Biophysics, the Interdisciplinary Neurosciences Departments, Biochemistry and Molecular Biology
Areas of Study: Cell membrane, physiology and dynamics which are basic to the understanding of both neurosciences and functional systems.

VI	NEUROSCIENCES
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(6 weeks, 1 day)

Participating departments/divisions: Anatomy and Neurobiology, Biochemistry and Molecular Biology, Neurology, Physiology, Surgery
Areas of Study: Development, structure and function of nervous tissues, anatomical organization of CNS, sensory and motor systems, higher functions, concepts in clinical neurology

IHB	INTIMATE HUMAN BEHAVIOR (IHB)
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(3 days)

Participating departments/divisions: Office of Student Affairs, selected faculty
Areas of Study: Lectures and audiovisual materials related to intimacy and sexuality, followed by discussion of the topics presented and related issues in small groups.

COURSE	TITLE
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VII

FUNCTIONAL SYSTEMS

(10 weeks, 4 days)

Participating departments/divisions: Anesthesiology, Internal Medicine, Neurology, Obstetrics, Gynecology and Reproductive Sciences, Pediatrics, Physiology, Surgery

Areas of study: Cell, cardiovascular, endocrine, gastrointestinal, renal, respiratory and integrative function

ICP	INTRODUCTION TO CLINICAL PRACTICE
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(1/2 day per week)

Participating departments/divisions: Family Medicine, Pediatrics, Psychiatry, Internal Medicine

Areas of study: Ethics, nutrition, intimate human behavior, interviewing and physical diagnosis issues, topics relevant to delivery of primary care

COURSE	TITLE
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VIII

HOST DEFENSES AND INFECTIOUS DISEASES

(10 weeks)

Participating departments/divisions: Epidemiology and Preventive Medicine, Medicine, Microbiology and Immunology, Pathology, Pediatrics, Pharmacology and Experimental Therapeutics

Areas of Study: Immunology, bacteriology, virology, parasitology, mycology

IX	PATHOPHYSIOLOGY AND THERAPEUTICS
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(24 weeks)

Participating departments/divisions: Anesthesiology, Cancer Center, Dermatology, Diagnostic Radiology, Epidemiology and Preventive Medicine, Medicine, Neurology, Obstetrics, Gynecology and Reproductive Sciences, Pathology, Pediatrics, Pharmacology and Experimental Therapeutics, Psychiatry, Surgery

Areas of study: Bone, cardiovascular; dermatologic, endocrine, gastrointestinal; hematologic; nervous, pulmonary, renal and reproductive systems

PD	PHYSICAL DIAGNOSIS
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(1/2 day per week)

Participating departments/divisions: Medicine, Family Medicine, Pediatrics, Psychiatry, Neurology, Ophthalmology, Obstetrics, Gynecology and Reproductive Sciences

Areas of Study: Fundamental aspects of history-taking and physical examination

APPROXIMATE TIME	COURSE TITLE
12 weeks	Internal Medicine
12 weeks	Surgery/Surgical Subspecialty
4 weeks	Family Medicine Clerkship
6 weeks	OB/GYN Clerkship
6 weeks	Pediatrics Clerkship
8 weeks	Psychiatry/Neurology Clerkship

APPROXIMATE TIME	COURSE TITLE
8 weeks	Ambulatory Care
8 weeks	Sub-Internship
4 weeks	Surgical Subspecialties
12 weeks	Electives

Combined MD/PhD Program

Training for Medical Scientists of the Future

In modern medicine the battleground for the fight against many diseases is found at the molecular level, on the surface or interior of cells or in the DNA of the human genome. Other important health problems involve complex studies of large populations within our society. Research into the mechanisms of human disease and the factors that maintain and restore human health requires investigators with interests and training in both basic science and clinical medicine.

The goal of the combined MD/PhD Program is to train medical scientists who will become leaders in medical research. To achieve this goal, a flexible program of combined medical and scientific training is provided for students of superior academic and research potential.

Research Environment

The MD/PhD Program capitalizes on the wide range of basic and clinical science training opportunities that are available on the rapidly expanding campus of the University of Maryland Baltimore. The program offers PhD degrees in many disciplines including: Anatomy, Biochemistry, Epidemiology and Preventive Medicine, Human Genetics, Microbiology and Immunology, Molecular and Cell Biology, Neuroscience, Pathology, Pharmacology and Experimental Therapeutics, Physiology and Toxicology. In addition, doctoral training is offered through interdisciplinary training programs including Neurosciences, Membrane Biology, Muscle Biology, Reproductive Endocrinology, and Toxicology – all supported by the National Institutes of Health. A unique strength of the program includes research centers that provide outstanding research opportunities for clinical investigators, such as: Center for Vaccine Development, Cancer

Center, Institute of Human Virology, Center for Fluorescence Spectroscopy, Nuclear Magnetic Resonance Facility, Environment and Human Health Research Center and the Maryland Biotechnology Institute. Thus, there is an extraordinary range of high quality research programs available to the MD/PhD students.

Program Requirements and Schedule

Requirements for the combined MD and PhD degrees are equivalent to those of the separate degrees of the Doctor of Medicine (School of Medicine) and the Doctor of Philosophy (Graduate School). The dual degree program can be completed within six-to eight-years.

Although the schedule of training can be flexible, entering students typically complete the two preclinical years as medical students prior to enrolling as full time graduate students. During this initial period the MD/PhD students normally use the pre- and post-freshman summers for research rotations in laboratories of their choice. In addition, during the first year there is an extensive orientation program which provides a detailed view of the diverse research opportunities available. The research rotations and orientation are designed to facilitate the choice of a thesis advisor.

After completion of the pre-clinical years, MD/PhD students enroll for two-to four-years in the PhD program of their choice. During this time they take required graduate courses and complete their dissertation research. Subsequently, students begin the final two years of their medical training which takes the form of a series of clinical clerkships. This program schedule is a general one. A student may complete the combined degree in a different sequence based on an alternative plan developed in consultation with the advisory committee.

Financial Support During MD/PhD Training

All students admitted into the program are awarded a waiver of tuition at the level of a Maryland resident during the medical school years. Supplemental support is available to pay out-of-state tuitions for a limited number of outstanding non-resident students. During the graduate school years stipends and tuition remission are awarded to all students through graduate programs and PhD mentors. A limited number of applicants may also qualify for supplemental funds through the Outstanding Scholars Program which provides a stipend for the medical school years as well. Students are selected for the Outstanding Scholars Program based on their record of achievement and potential for future development. For current information on stipends, contact the program director.

Application Process

The MD/PhD Program is open to all qualified applicants, regardless of state residence. Applicants to the program are required to meet the admissions requirements of the School of Medicine. Applicants complete and file an AMCAS application, choosing the University of Maryland as one of the schools to receive the application. The secondary application package includes an MD/PhD Program supplemental form which must be completed and returned with the secondary application. Criteria for admission include MCAT scores, the undergraduate/graduate academic records, letters of recommendation and, very importantly, research experience. Applicants are selected for interviews based on the above criteria. Prospective students are interviewed for the MD/PhD Program and the School of Medicine during an initial one-day visit to the campus. Admission to the MD/PhD Program is determined by the MD/PhD Advisory Committee in consultation with the medical school admissions committee.

For further information, including details of the specific PhD programs, contact:

Terry B. Rogers, Ph.D.
Director, MD/PhD Program
Room 1-005 Bressler Research Building
655 W. Baltimore Street
Baltimore, MD 21201
(410) 706-3990
trogers@som.umaryland.edu

Office of Student Research

The Office of Student Research (OSR) provides opportunities for students from high school through medical school to consider the possibility of graduate school, a career in the health professions and/or academic medicine and of specifically increasing the number of under-represented minority (African American, Native Americans, mainland Puerto Rican and Mexican American) students and faculty in those professions. Medical students are encouraged to become involved in biomedical investigations through participation in supervised basic and clinical research projects offered by School of Medicine faculty through the Office of Student Research. The medical student program is supported jointly by a training grant from the National Institutes of Health and the Office of the Dean. The faculty and administration of the School of Medicine are committed to the training of physician-scientists through the OSR's Short Term Research Training Program (STRTP) for medical students. The office strives to enhance the connection between the treatment of patients and the scientific investigations that enable patient care to advance. The physician-scientist who bridges both basic and clinical sciences and clinical practice is therefore in an ideal position to translate research into clinical application and patient problems into laboratory investigation.

Research is currently being conducted in several major areas of interest at the School of Medicine. These include, but are not limited to, behavior, cardiovascular disease, endocrinology, environmental health, epidemiology, infectious disease, immunology, neuroscience, oncology, pharmacology, pulmonary disease, toxicology and virology. Traineeships are awarded on a competitive basis and currently provide \$400 per week for 10-to-12 weeks of full-time participation. These experiences are available to incoming students during the summer before their freshman year, and to medical students generally during the summer after their freshman year. On occasion, awards are made to students during the summer after their sophomore year or to seniors during the academic year. STRTP funds are not granted to students with doctoral degrees, to those who are involved in doctoral dissertation research or who have alternative sources of research funding. However, the program may supplement some alternate sources up to the level of STRTP trainees. Applications for all programs are available at our website: <http://www.medschool.umaryland.edu/osr>.

Students selected to participate in the program attend the summer "Colloquium on Research" that consists of research seminars and a short course entitled "The Ethical and Responsible Conduct of Research." Students also present their research to fellow students and faculty during the summer at the Student Research Forum and on Medical Student Research Day each October.

Summer research traineeships are available to under-represented minority high school and college students to encourage careers in one of the health professions and/or biomedical research. The programs provide students with a realistic understanding of the biomedical research environment through hands-on experience, contact with appropriate role models and application procedures for professional and graduate schools. Positions are available for minority undergraduate

students to conduct research with School of Medicine faculty for 10-12 weeks during the summer months and at selected sites off-campus. Trainees work under the direct supervision of experienced scientists and receive \$314 per week for the 10-12 week period.

Foreign research traineeships are also available in Europe, South America and the West Indies for medical students and undergraduates with prior research experience. The OSR funds such foreign research opportunities through its Medical Student International Research Training Program and Fogarty Minority International Research Training Programs. In addition, opportunities are also available in Mali, West Africa through the Fogarty Mali Program at the School of Medicine.

The office promotes biomedical/behavioral research experiences for K-12 and in-service mathematics and science teachers. These experiences aid teachers in redefining K-12 curriculum and of informing their students of career opportunities. The OSR works cooperatively with student groups, various high school, Minority Access to Research Careers (MARC) and Minority Biomedical Research Support (MBRS) directors in Maryland and other states to ensure access to research careers and involvement for all who are interested.

Applicants for all programs must be currently enrolled in high school, undergraduate school or post-baccalaureate program, graduate or medical school, be in good academic standing with a GPA of 3.0 at the time of application and must not have graduated at the time of the traineeship. Although students from any state may apply, preference is given to Maryland residents. For high school students and undergraduates, it is strongly recommended that applicants have successfully completed courses in biology and chemistry.

Other opportunities may exist for brief or extended research experiences, either on or off campus. The OSR provides a list of useful links to such opportunities at its website, maintains a list of opportunities and also surveys for on- and off-campus research opportunities in both clinical and basic science areas that may be available throughout the calendar year. In some cases individual faculty members may have grant funding to support a student.

Medical Student Research Day

Alpha Omega Alpha (AOA), the national medical honor society, and the Office of Student Research sponsor a research competition each year in October. All medical students are encouraged to participate and attend these presentations and, except for those students in the MD/PhD Program who have begun dissertation research, are eligible to compete for \$2,000 in prizes. Students make oral or poster presentations, attend a keynote address, dinner and a ceremony during which prizes are awarded for four poster and four oral presentations.

For further information on research programs or Medical Student Research Day contact:

Dr. Jordan E. Warnick
Professor and Assistant Dean
Office of Student Research
685 West Baltimore Street-142 HSF
Baltimore, Maryland 21201
(410) 706-3026
jwarnick@som.umaryland.edu
<http://www.medschool.umaryland.edu/osr>

Graduate Programs

The Graduate School is the largest of the schools on the University of Maryland Baltimore campus, enrolling more than 1200 students. It offers the MS, MA, and PhD degrees and, in conjunction with the professional schools, the opportunity to complete joint degrees including the MD/PhD and the DDS/PhD. Almost 350 graduate students are pursuing studies in departments and programs in the School of Medicine. Among them are about 35 MD/PhD students who are being trained to conduct the theoretical and applied research that underlies advances in clinical medicine.

PhD students in the School of Medicine are generally provided financial support for the entire course of their studies. This support comes in the form of Graduate Research Assistantships (stipend, tuition remission, and health insurance), provided by the Graduate School and/or by the School of Medicine, during the initial years of study. When a student begins dissertation research, he/she is supported by the research funds of his/her mentor. In recent years research funding to all schools on the campus has increased dramatically, with major support coming from agencies such as the National Institutes of Health, the National Science Foundation, the Veteran's Administration, various agencies of the state of Maryland and the private sector.

Administratively, the Graduate School at the University of Maryland Baltimore is part of the University of Maryland Graduate School, Baltimore (UMGSB). The UMGSB governs the graduate programs located on both the Baltimore and the University of Maryland Baltimore County (UMBC) campuses, bearing primary responsibility for approval of new courses and programs and admission of faculty to Graduate Faculty status. An advantage of this linkage is increased access for Baltimore campus students to the diverse programs in engineering, computer sciences, and the liberal arts and sciences offered on the UMBC campus, 20 minutes away by car.

In addition to its degree-granting programs, the Graduate School, in collaboration with the campus office of Student Services, sponsors a Writing Center. It also offers informal programs in the ethical conduct of research and a survival skills seminar series. The latter aims to provide professional enrichment and addresses topics such as giving a good oral presentation, grant writing and mentor selection. These offerings are open to all students (and faculty) on campus. A Survival Skills Library is located in the campus Writing Center, room 008, Baltimore Student Union.

The following graduate programs are offered on the University of Maryland Baltimore campus:

Anatomy and Neurobiology		PhD
Biochemistry*	MS	PhD
Dental Hygiene		MS
Epidemiology		PhD
Ethics, Applied and Professional*		MA
Gerontology*		PhD
Human Genetics	MS	PhD
Marine-Estuarine-Environmental Sciences*	MS	PhD
Medical and Research Technology		MS
Microbiology and Immunology		PhD
Molecular and Cell Biology*		PhD
Neuroscience and Cognitive Science*		PhD
Nursing	MS	PhD
Oral Biology		MS
Oral and Craniofacial Biological Sciences	MS	PhD
Oral and Experimental Pathology	MS	PhD
Pathology	MS	PhD
Pharmaceutical Sciences		PhD
Pharmacology and Experimental Therapeutics	MS	PhD

Pharmaceutical Health Services Research		PhD
Physical Rehabilitation Science		PhD
Physiology	MS	PhD
Preventive Medicine		MS
Social Work		PhD
Toxicology*	MS	PhD

*Interdisciplinary programs

Interdisciplinary programs, involving multiple departments on the Baltimore campus or departments on several of the campuses of the University System of Maryland, are becoming increasingly important to the Graduate School. Such programs make efficient use of resources while allowing the school to move quickly into emerging research areas of national importance.

Graduate School applications and catalogs can be obtained by contacting:

Graduate Admissions and Enrollment Services

621 West Lombard Street, Room 336

Baltimore, MD 21201

(410) 706-7131

gradinfo@umaryland.edu

A wide variety of information on the Graduate School, including catalog and application information, can be accessed via the Graduate School web page: **<http://graduate.umaryland.edu>**.

Residencies and Fellowships

The Office of Graduate and Continuing Medical Education assists the University of Maryland Medical System in providing collaborative oversight of postgraduate residency education programs. Activities of the office include providing administrative support for the National Residency Matching Program, providing professional and staff support for oversight of ACGME-approved programs, and developing residency curricula.

Graduate medical education training for residents and fellows is offered in a variety of clinical sites. The majority of clinical training occurs at the University of Maryland Medical System, the Baltimore Veterans Affairs Medical Center and Mercy Medical Center. A network of affiliated community hospitals and ambulatory care centers with significant commitment to the importance of a teaching environment provides much of the variety and depth offered to residents and fellows.

Programs are accredited by the Accreditation Council for Graduate Medical Education (ACGME) comprised of the following member organizations: American Board of Medical Specialties, American Hospital Association, American Medical Association, Association of American Medical Colleges and the Council of Medical Specialty Societies.

Residency positions are filled through the National Resident Matching Program. Participating in the match are the following programs: preliminary programs in medicine and surgery; categorical programs in diagnostic radiology, emergency medicine, family practice, general surgery, internal medicine, combined program in internal medicine/pediatrics, neurology, obstetrics and gynecology, orthopaedic surgery, pathology, pediatrics, combined program in pediatrics/emergency medicine and psychiatry; advanced programs in anesthesiology, diagnostic radiology and radiation oncology.

Resident and/or fellowship positions are available in the following ACGME-approved specialty and subspecialty areas and are sponsored by the University of Maryland Medical System. Programs identified with an (*) are currently approved University of Maryland Fellowship

programs and are not currently overseen by the ACGME. For information on new programs or additional postgraduate training opportunities, please contact the individual departments or the ACGME directly.

Department of Anesthesiology:

anesthesiology, critical care, pain management

Department of Dermatology:

dermatology

Department of Diagnostic Radiology:

diagnostic radiology, vascular and interventional radiology, neuroradiology, nuclear radiology and nuclear medicine

Department of Epidemiology and Preventive Medicine:

preventive medicine

Department of Family Medicine:

family practice, sports medicine

Department of Medicine:

internal medicine, cardiovascular disease, interventional cardiology, clinical cardiac electrophysiology, endocrinology diabetes & metabolism, gastroenterology, geriatric medicine, hematology/oncology, infectious diseases, nephrology, pulmonary disease and critical care medicine, rheumatology, combined program in internal medicine/pediatrics

Department of Neurology:

neurology, clinical neurophysiology

Department of Neurosurgery:

neurological surgery

Department of Obstetrics, Gynecology and Reproductive Sciences:

obstetrics and gynecology

Department of Ophthalmology:

ophthalmology, glaucoma*, retina ophthalmology*

Department of Orthopedic Surgery

orthopedic surgery, trauma orthopedics, limb-lengthening and reconstruction*

Department of Pathology:

pathology, hematopathology

Department of Pediatrics:

pediatrics, behavioral and developmental pediatrics*, critical care, endocrinology, infectious diseases, neonatology-perinatology, combined programs in internal medicine/pediatrics and pediatrics/emergency medicine and pediatric medicine

Department of Psychiatry:

psychiatry, addiction psychiatry, child and adolescent psychiatry, geriatric psychiatry, forensic psychiatry

Department of Radiation Oncology:

radiation oncology

Department of Surgery:

general surgery, otolaryngology, thoracic and cardiovascular surgery, urology, emergency medicine, pediatric surgery, plastic and reconstructive surgery, vascular surgery, surgical critical care and combined program in pediatrics/emergency medicine

Correspondence, applications and residency inquiries should be addressed to the chairperson of the respective department or program in care of:

**University of Maryland Medical System
22 South Greene Street
Baltimore, Maryland 21201**

Continuing Medical Education

The University of Maryland School of Medicine is accredited by the ACCME and provides a wide array of continuing medical education (CME) activities. These educational activities assist physicians in the maintenance and enhancement of their clinical competence in order to promote high quality health care for the citizens of Maryland and elsewhere. To assure clinical relevance, activities are designed on the basis of identified educational needs of practicing physicians.

CME offerings consist of courses (one-half to five days in length), “hands on” workshops, enduring materials (including self-study programs), and a complex array of clinical departmental and division rounds and conferences. Opportunities for interaction between attendees and presenters are part of all CME activities where possible.

The CME program is administered by the Associate Dean for Graduate and Continuing Medical Education and a full-time staff, with the assistance of a faculty advisory committee. For further information please contact:

**Office of Graduate and Continuing Medical Education
University of Maryland School of Medicine
655 West Baltimore Street-Rm 14-015
Baltimore, Maryland 21201
(410) 706-3956**



Internships and Residencies

Class of 1998

ANESTHESIOLOGY

Maryland (2)
Out-of-State (0)
Johns Hopkins Hospital

DIAGNOSTIC RADIOLOGY

Maryland (0)
Out-of-State (2)
Brooke Army Medical Center
UMDNJ-Robert Wood Johnson Medical School

EMERGENCY MEDICINE

Maryland (3)
Out-of-State (7)
Johns Hopkins Hospital
Howard University Hospital
University of Maryland Hospital
LSU School of Medicine-New Orleans
Mt. Sinai Medical Center-Cleveland
Stanford University Hospital
SUNY Health Science Center-Syracuse
UMDNJ-Robert Wood Johnson Medical School/Camden
University of Virginia Health Science Center

FAMILY PRACTICE

Maryland (4)
Out-of-State (14)
Franklin Square Hospital
Altoona Hospital
University Maryland Hospital
Eastern Virginia Graduate School of Medicine
Family Medicine of SW Washington
Indiana University School of Medicine
Medical Center of Central Georgia
Moses H. Cone Memorial Hospital
Providence Medical Center
Riverside General Hospital
St. Joseph Hospital
University of Florida Health Science Center
University of Virginia
University of Michigan
York Hospital

INTERNAL MEDICINE

Maryland (10)
Out-of-State (28)
Johns Hopkins Hospital
Allegheny University Hospital
University of Maryland Hospital
Baylor College of Medicine
Boston University Medical Center
Fletcher Allen Health Care
George Washington University Hospital
Georgetown University Medical Center
Hospital of the University of Pennsylvania
Maine Medical Center
Montefiore Medical Center
Northwestern University
St. Mary Medical Center
Strong Memorial Hospital
Temple University Hospital
Thomas Jefferson University
UCLA Medical Center
University of Colorado School of Medicine
University Health Center of Pittsburgh
Walter Reed Army Medical Center

INTERNAL MEDICINE— PRELIMINARY

Maryland (7)
Out of State (3)
University of Maryland Hospital
Georgetown University Medical Center
Jacobi Medical Center
Montefiore Medical Center

COMBINED PROGRAMS

MED-PEDS:

Maryland (0)
Out of State (3)
Albany Medical Center Hospital
Baylor College of Medicine
University of Utah

MED-ERMD:

Maryland (2)
Out of State(0)
University of Maryland Hospital

MED-PSYC:

- Maryland (0)
- Out of State (1)
- Duke University Medical College

NEUROSURGERY

- Maryland (0)
- Out-of-State (2)
- Indiana University Medical Center
- University of Pennsylvania Medical Center

OBSTETRICS AND GYNECOLOGY

- Maryland (1)
- Out-of-State (3)
- Sinai Hospital of Baltimore
- Georgetown University Hospital
- Howard University Hospital
- University Medical Center at Stony Brook

OPHTHALMOLOGY

- Maryland (1)
- Out-of-State (2)
- University of Maryland Hospital
- St. Vincent’s Hospital & Medical Center
- Washington Hospital Center

ORTHOPEDICS

- Maryland (2)
- Out-of-State (1)
- University of Maryland Hospital
- University of Illinois at Chicago

OTOLARYNGOLOGY

- Maryland (1)
- Out-of-State (0)
- Johns Hopkins Hospital

PATHOLOGY

- Maryland (1)
- Out-of-State (1)
- University of Maryland Hospital
- Brigham & Women’s Hospital

PEDIATRICS

- Maryland (4)
- Out-of-State (17)
- Sinai Hospital of Baltimore
- Baylor College of Medicine
- University of Maryland Hospital
- Brown University
- Johns Hopkins Hospital
- Children’s National Medical Center
- Duke University Medical Center
- Eastern Carolina Medical Center

- Indiana University Medical Center
- Long Island Jewish Medical Center
- Milton S. Hershey Medical Center
- Rush-Presbyterian-Saint Luke Hospital
- St. Christopher’s Hospital
- Thomas Jefferson University
- Tripler Army Medical Center
- University of CA-San Francisco
- University Hospitals of Cleveland

PSYCHIATRY

- Maryland (1)
- Out-of-State (1)
- University of Maryland Hospital
- University South Carolina School of Medicine

SURGERY

- Maryland (3)
- Out-of-State (7)
- University of Maryland Hospital
- Carilion Roanoke Memorial Hospital
- Bethesda Naval Medical Center
- George Washington University Hospital
- Milton S. Hershey Medical Center
- Strong Memorial Hospital
- SUNY at Buffalo Affiliated Hospitals
- UMDNJ-Robert Wood Johnson Medical School
- University of South Florida

SURGERY—PRELIMINARY

- Maryland (3)
- Out-of-State (3)
- Johns Hopkins Hospital
- Georgetown University Hospital
- University of Maryland Hospital
- Indiana University Medical Center
- Tulane Affiliated Hospitals

TRANSITIONAL

- Maryland (0)
- Out-of-State (4)
- Frankford Hospital
- Lehigh Valley Hospital
- Naval Medical Center-San Diego
- Tucson Hospital Medical Education Program

UROLOGY

- Maryland (1)
- Out-of-State (1)
- University Maryland Hospital
- University Texas at Houston

ANESTHESIOLOGY

Maryland (1)
Out-of-State (2)
Rush-Presbyterian-Saint Luke's Hospital
University of California-Irvine Medical Center
Johns Hopkins Hospital

DIAGNOSTIC RADIOLOGY

Maryland (0)
Out-of-State (6)
Stony Brook Teaching Hospital
Howard University Hospital
Hartford Hospital
Albany Medical Center Hospital
Boston University Medical Center Hospital
University of California-Los Angeles Medical Center

EMERGENCY MEDICINE

Maryland (2)
Out-of-State (12)
Temple University Hospital
Mount Sinai Medical Center
University Health Center of Pittsburgh
Johns Hopkins Hospital
Thomas Jefferson University Hospital (2)
Morristown Memorial Hospital
George Washington University
University of Maryland Hospital
Wright State University
University of Texas Southwestern Medical Center
University Health Center of Pittsburgh
St. John Hospital and Medical Center
University of California-Irvine Medical Center

FAMILY PRACTICE

Maryland (2)
Out-of-State (12)
Franklin Square Hospital
University of Maryland Hospital
St. Mary-Corwin Regional Medical Center (2)
Harbor-UCLA Medical Center
Chestnut Hill Hospital
York Hospital (3)
George Washington University
University of Nebraska Medical Center
Florida Hospital
Carolinas Medical Center
Beth Israel Medical Center

INTERNAL MEDICINE

Maryland (10)
Out-of-State (19)
Boston University Medical Center
Presbyterian Hospital
Thomas Jefferson University (2)
University of Maryland Hospital (9)
Rush-Presbyterian-Saint Luke's Hospital
Milton S. Hershey Medical Center (2)
University of Pittsburgh
Oregon Health Sciences University
Strong Memorial Hospital
San Antonio Uniformed Services Health Center (2)
Temple University Hospital
Johns Hopkins Bayview Medical Center
Duke University Medical Center
York Hospital
UMDNJ-University Hospital
University of Chicago Hospital
Los Angeles County-University of Southern California Medical Center
New England Medical Center

INTERNAL MEDICINE— PRELIMINARY

Maryland (10)
Out-of-State (10)
Medical Center of Delaware (2)
University of Maryland Hospital (7)
Valley Medical Center
Howard University Hospital
Franklin Square Hospital (2)
Medical Center of Delaware
Cedars Sinai Medical Center
Boston University Medical Center
University of Virginia
George Washington University Hospital
The Presbyterian Hospital
Sinai Hospital of Baltimore

COMBINED PROGRAMS

MED-PEDS:

Maryland (0)
Out-of-State (3)
University of North Carolina
University Hospitals of Cleveland
University of Chicago Hospital

MED-ERMD:

Maryland (0)
Out-of-State (0)

MED-PSYC:

Maryland (0)
Out-of-State (1)
Duke University Medical Center

NEUROLOGY

Maryland (0)
Out-of-State (1)
Baylor College of Medicine

NEUROSURGERY

Maryland (1)
Out-of-State (0)
University of Maryland Hospital

OBSTETRICS AND GYNECOLOGY

Maryland (1)
Out-of-State (3)
University of South Florida
Jackson Memorial Medical Center
Milton S. Hershey Medical Center
Johns Hopkins Hospital

OPHTHALMOLOGY

Maryland (1)
Out-of-State (4)
University of Maryland Hospital
University of Miami
Medical Center of South Carolina
Temple University Medical Center
Geisinger Medical Center

ORTHOPEDICS

Maryland (2)
Out-of-State (0)
University of Maryland Hospital

OTOLARYNGOLOGY

Maryland (0)
Out-of-State (2)
University of Washington
University of Pittsburgh

PATHOLOGY

Maryland (1)
Out-of-State (0)
Johns Hopkins Hospital

PEDIATRICS

Maryland (5)
Out-of-State (17)
Johns Hopkins Hospital
Miami Children's Hospital

Oregon Health Sciences University
Sinai Hospital of Baltimore (2)
University of Maryland Hospital (2)
Wayne State University
Albert Einstein Medical Center
Saint Christopher's Hospital
Howard University Hospital
Stony Brook Teaching Hospital
Children's National Medical Center
Children's Hospital of Philadelphia
Children's Hospital of Austin
Ohio State University
Georgetown University Hospital
Inova Fairfax Hospital
University Hospital of Cincinnati
University Hospital of Pittsburgh
San Antonio Uniformed Services Health Center
Mount Sinai Medical Center

**PHYSICAL MEDICINE
AND REHABILITATION**

Maryland (0)
Out-of-State (1)
Ohio State University

PLASTIC SURGERY

Maryland (0)
Out-of-State (1)
Georgetown University Medical Center

PSYCHIATRY

Maryland (2)
Out-of-State (4)
University of Maryland Hospital (2)
University Health System Eastern Carolina
Medical University of South Carolina
Emory University Medical Center
University of California-Los Angeles
Neuropsychiatric Institute

RADIATION ONCOLOGY

Maryland (0)
Out-of-State (1)
University of Chicago Medical Center

SURGERY

Maryland (2)
Out-of-State (9)
Bethesda Naval Medical Center
University of Florida
Georgetown University Hospital
Eisenhower Army Medical Center
Thomas Jefferson University Hospital

Mercy Hospital of Pittsburgh
Strong Memorial Hospital
Georgetown University Hospital
University of Maryland Hospital
Wayne State University Medical Center (2)

SURGERY—PRELIMINARY

Maryland (1)
Out-of-State (1)
University of Maryland Hospital
University Health Center of Pittsburgh

TRANSITIONAL

Maryland (0)
Out-of-State (4)
Crozer-Chester Medical Center
York Hospital (2)
Madigan Army Medical Center

UROLOGY

Maryland (1)
Out-of-State (2)
University of Maryland Hospital
Boston University Medical Center
University of Pennsylvania Medical Center

Class of 2000

ANESTHESIOLOGY

Maryland (1)
Out-of-State (5)
Beth Israel Deaconess Medical Center
Temple University Hospital
Medical College of Wisconsin Affiliated
Hospital
Mount Sinai Hospital
St. Vincent's Hospital
University of Maryland Hospital

DERMATOLOGY

Maryland (1)
Out-of-State (2)
Mayo Clinic
University of Maryland Hospital
Saint Luke's-Roosevelt Hospital

DIAGNOSTIC RADIOLOGY

Maryland (3)
Out-of-State (4)
Thomas Jefferson University
Beth Israel Deaconess Medical Center
University of Maryland Hospital (3)
Christiana Care Hospital
University of Arizona Affiliate Hospital

EMERGENCY MEDICINE

Maryland (1)
Out-of-State (5)
Hospital of the University of Pennsylvania
Strong Memorial Hospital
University of Maryland Hospital
University of Massachusetts Hospital
University of Chicago Hospital
Thomas Jefferson University

FAMILY PRACTICE

Maryland (1)
Out-of-State (22)
Atlanta Medical Center
Pomona Valley Hospital
Halifax Medical Center
Oregon Health Science Center
York Hospital
University of Maryland Hospital
University Health System of East Carolina
Washington Hospital
St. Joseph's Hospital (2)
Martin Army Community Hospital
Medical College of Virginia
Medical College of Georgia
Crozer-Keystone Health Center
Reading Medical Center
Memorial Hospital
Williamsport Hospital
University of Minnesota Health Center
Central Maine Medical Center
Lancaster General Hospital
University of California-Davis
Fairfax Family Practice Center
Morehouse School of Medicine Affiliated
Hospital

INTERNAL MEDICINE

Maryland (8)
Out-of-State (29)
University of Maryland Hospital (5)
Johns Hopkins Hospital (2)
University of Michigan Hospital
Duke University Medical Center (3)
University of Minnesota Medical Center
University Health Center

Boston University Medical Center (2)
 George Washington University
 University of Southern California Medical Center (2)
 University of North Carolina Hospital Shands Hospital
 Bethesda Naval Medical Center
 McGaw Medical Center (2)
 University of Southern Florida
 Oregon Health Science University
 University of Chicago Hospital
 University Hospital of Cleveland
 Beth Israel Deaconess Medical Center
 Thomas Jefferson University
 Columbia Presbyterian Hospital
 Geisinger Medical Center
 Walter Reed Army Medical Center
 Washington Hospital Center
 California Pacific Medical Center
 Emmanuel/Good Samaritin Hospital
 Temple University Hospital
 Hospital of the University of Pennsylvania

INTERNAL MEDICINE— PRELIMINARY

Maryland (10)
 Out-of-State (9)
 University of Maryland Hospital (3)
 University of California-San Diego Medical Center
 Union Memorial Hospital (2)
 Mercy Medical Center (4)
 Christiana Care
 Georgetown University Hospital
 San Fernando Valley Medical Center
 Jacobi Medical Center
 Mercy Catholic Medical Center
 Lenox Hill Hospital
 Kaiser Permanente Medical Center
 Washington Hospital Center
 Johns Hopkins-Bayview Hospital

COMBINED PROGRAMS

MED-PEDS

Maryland (0)
 Out-of-State (4)
 UMDNJ-New Jersey Medical Center
 University of California-San Diego Medical Center
 University of Chicago Hospital
 Cedars-Sinai Medical Center

MED-ERMD

Maryland (0)
 Out-of-State (1)
 Allegheny General Hospital

MED-PSYC

Maryland (0)
 Out-of-State (0)

PEDS-ERMD

Maryland (1)
 Out-of-State (0)
 University of Maryland Hospital

PEDS-PSYC

Maryland (0)
 Out-of-State (1)
 Mount Sinai Hospital

NEUROLOGY

Maryland (0)
 Out-of-State (2)
 University Hospitals of Cleveland
 Reed Neurological Research Center

NEUROSURGERY

Maryland (0)
 Out-of-State (2)
 Brigham and Women's Children Hospital
 Westchester County Medical Center

OBSTETRICS AND GYNECOLOGY

Maryland (1)
 Out-of-State (2)
 Memorial Health Care Center
 University of Louisville Medical Center
 Franklin Square Hospital

OPHTHALMOLOGY

Maryland (0)
 Out-of-State (2)
 Georgetown University Medical Center
 Montefiore Medical Center

ORTHOPEDICS

Maryland (1)
 Out-of-State (3)
 State University of New York Health Center
 Howard University Hospital
 University of Maryland Hospital
 Wake Forest University Medical Center

OTOLARYNGOLOGY

Maryland (1)
 Out-of-State (0)
 University of Maryland Hospital

PATHOLOGY

Maryland (0)
Out-of-State (0)

PEDIATRICS

Maryland (6)
Out-of-State (10)
Inova Fairfax Hospital
UMDNJ-New Jersey Medical Center
Johns Hopkins Hospital
Saint Christopher's Hospital
University of Maryland Hospital (3)
University Hospital of Cleveland (2)
Long Island Jewish Hospital
Louisiana State University Medical Center
Sinai Hospital (2)
Albert Einstein/Montefiore Hospital
Baylor Medical Center
Medical University of South Carolina
Maimonides Medical Center

PHYSICAL REHABILITATION MEDICINE

Maryland
Out-of-State (1)
Mayo Clinic

PSYCHIATRY

Maryland (3)
Out-of-State (2)
New York Medical Center (2)
University of Maryland Hospital (3)

RADIATION ONCOLOGY

Maryland (0)
Out-of-State (3)
Emory University Medical Center
Loma Linda Medical Center
University of Michigan Hospital

SURGERY

Maryland (2)
Out-of-State (5)
Beth Israel Deaconess Medical Center
Boston University Medical Center
Morristown Memorial Hospital
University of Florida Health Center
Saint Luke's Bethlehem Hospital
Union Memorial Hospital
Bethesda Naval Medical Center

SURGERY-PRELIMINARY

Maryland (0)
Out-of-State (2)
University of Colorado Health Center
Brigham and Women's Hospital

TRANSITIONAL

Maryland (1)
Out-of-State (2)
Crozer-Chester Medical Center
Harbor Hospital Center
Tucson Hospital

UROLOGY

Maryland (0)
Out-of-State (0)



Resources

Office of Medical Education (OME)

The Office of Medical Education:

- Provides educational support for faculty and students.
- Provides multi-media systems design and hardware installation for medical school education.
- Provides faculty development through instructional techniques, design and evaluation in coordination with the Office of Faculty and Student Development.
- Provides educational resources including audiovisual aids, instructional videotapes and computer software programs.
- Develops and implements computer-based instructional systems.
- Assists in the development of special educational programs.
- Assists in curriculum development and evaluation of curricular programs.
- Provides evaluation of instructional systems and techniques.
- Provides for the operation and maintenance of the Dr. Irving J. Taylor Learning Resources Center and Computer Learning Center.
- Provides audiovisual support services for lecture halls, small group classrooms and special events.
- Provides individual and group tutorials, mock examinations and study skills workshops.
- Provides research in medical education, instructional design, evaluative techniques and educational technology.
- Consults with faculty and staff of the medical school, as well as the other UMB schools in media production.
- Provides classroom scheduling.

A variety of services, administered by the director of academic development, offer a variety of opportunities for students to become more effective, efficient learners. The services include:

The Prematriculation Summer Program (PSP): Prior to the beginning of the academic year, incoming freshmen are invited to take part in a six-week simulation of the first year curriculum. Participants study significant portions of Structure & Development and Cell & Molecular Biology, and are given a brief introduction to Functional Systems; learn to handle the medical school's accelerated pace and grasp-of-material demands; gain practice in gross anatomy and histology labs, small group study, and exam-taking; and refine their study skills and habits to meet the new challenges. PSP is especially designed for students who are at greater risk of not succeeding in medical school; such applicants are given enrollment preference. Follow-up studies have consistently shown that PSP has had a positive and significant impact on the academic achievement of PSP students. Each year, the program also affords a select group of academically talented sophomores the opportunity to explore academic medicine and sharpen their own academic knowledge by teaching this class of approximately 20 students.

Supplemental Instruction: Individual and small group tutorials are available to all freshmen and sophomores as needed at no charge.

Academic Development Workshops: At various times throughout the year, formal presentations and panel discussions addressing topics of general concern and interest (e.g., time management, active learning, test-taking, and course previews) are conducted.

Academic Counseling: Individual counseling sessions, focusing on problems affecting academic performance and strategies for improvement, are available to all medical, physical therapy and medical technology students.

Academic Monitoring: First- and second-year exam results are reviewed frequently. Students who do not pass an exam or whose results are significantly lower than usual, are invited in for consultation as soon as possible after the poor exam showing. The student works with the director in specifying what went wrong and in fashioning an appropriate remedy. Follow-up contacts provide additional support to the student. The Academic Monitoring Committee meets periodically to examine the academic progress of all first- and second-year students with particular attention paid to devising interventions for students experiencing difficulty.

Board Preparation: A series of activities assist sophomores in getting ready for the USMLE STEP I. Activities include: gathering and sharing with sophomores the collective wisdom of juniors whom have just taken the boards; offering frequent formal review sessions covering “high yield” exam topics; conducting occasional information-sharing workshops and panel discussions; identifying “at risk” students who may have difficulty with STEP I for special board prep assistance; in individual consultations, structuring study strategies/schedules, answering questions and discussing areas of concern; administering a February mock board which provides students with baseline information as well as giving a “heads up” that the boards are approaching; helping those who must retake the STEP I. Board review books are available for circulation from the academic development resource library. By request, assistance also is given to those preparing for the STEP II or the specialty licensing exams.

Research: Ongoing data collection and analysis provide a source of information useful in clarifying the role and interplay of various factors involved in student learning. These qualitative and quantitative data sets are utilized by others conducting research or making curriculum decisions.

Educational Screening/Special Accommodations: Students with learning disabilities (LD) or attention deficit disorders (ADD) receive assistance in minimizing the disability’s impact on their academic performance. Students suspected of being LD or ADD, but not previously identified as such, are referred for testing. If the results are positive, the student will receive assistance in gaining accommodations and adjusting his/her study approach accordingly.

Irving J. Taylor Learning Resources Center and Clinical Media Library: The Irving J. Taylor basic sciences media library provides students with access to many self-instructional materials including videotapes, slide-tapes, computer-assisted instruction, lecture tapes and reference books.

Student Computer Facilities: The Office of Medical Education is responsible for the operation of two student microcomputer facilities: the Computer Learning Center and the Apple Macintosh laboratory. Both of these facilities are part of the Irving J. Taylor Learning Resources Center and are located adjacent to each other on the second floor of the MSTF building. The Computer

Learning Center (CLC), located in the Medical School Teaching Facility, is a 20-station MS-DOS microcomputer lab. The Office of Medical Education maintains the network and provides helpdesk activities to support student laptop computers.

Illustration: Services include comprehensive renderings of surgical and clinical techniques, anatomical renderings, statistical charts and other graphic representations. Additional service includes comprehensive design and finishing of flyers, brochures, programs, posters, displays and exhibits, and layout and paste-up for offset printing and photographic copying.

Photography: Services include photographic copying of flat material such as written matter, x-rays, laboratory tracings and data; photography of specimens, equipment set-ups, surgical, clinical and laboratory activities; and portraits for school-related purposes. The photography laboratory also handles slide duplication, and acts as a collection station for commercial processing of color photography. Computer-developed color slides are a major area of service.

Health Sciences and Human Services Library

"The library is always one of the first places you look to in order to measure the quality of any institution of higher education. Those who see our new library, from the outside and inside, will have no doubt as to the seriousness of our academic mission. This wonderful building puts us in a leadership position on an international scale."

—UMB PRESIDENT DAVID J. RAMSAY (March, 1998)

Distinguished as the first library established by a medical school in the United States, the University of Maryland continued its leadership role when the new Health Sciences and Human Services Library (HS/HSL) opened in April of 1998.

The library is the second largest medical school library on the East Coast. The library has six levels and covers 190,000 square feet which includes the Tower Café, the HS/HSL coffee lounge. This fully-wired and networked library features 1500 data connections for laptop users along with 50 public-access workstations and three computer classrooms. There is seating for 900 individuals in the library. This arrangement includes 130 individual study-carrels and 40 collaborative learning rooms always available to students.

If a library user forgets to bring their laptop, the library's Research and Information Commons on the main floor provides 37 workstations that have access to everything from the Web to email to databases to full-text journals/textbooks to applications. The library's 360,000 volumes and 2300 journal titles are accessible through HS/HSL online catalog.

The HS/HSL digital information resources are available offsite through the web site (<http://www.hshsl.umaryland.edu>). Additionally, the Web page directs users to other valuable resources from around the world and is also the first place to look for additional news and information about the Health Sciences and Human Services Library.

UMnet, the campus computer network that provides 24-hour offsite (campus computer labs, home or office) access to electronic resources, undergirds the library databases and services, e-mail, Internet and World Wide Web resources. UMnet assistance, as well as account registration support, is provided by the HS/HSL. Valuable information regarding UMnet can be found at the HS/HSL's web site. All students are provided with UMnet accounts and free access to the HS/HSL digital resources.

All library services are fully supported by a staff of librarians, computing and network support professionals. The staff is available for consultations and instruction as well as assistance in planning for the integration of information skills into curricula and courses.

In addition to serving all the professional schools on campus and the University of Maryland Medical Center, the library is a nationally recognized leader in information technology and serves as the Regional Medical Library for the Southeastern United States, Region 2 of the National Network of Libraries of Medicine.

For further information about the library and its services, access the library's Web address at <http://www.hshsl.umaryland.edu>.

Medical Alumni Association

The Medical Alumni Association – the oldest independent medical alumni association in the United States – has served all students, graduates, faculty and staff affiliated with the School of Medicine since 1875. Located in Davidge Hall, 522 West Lombard Street, the Medical Alumni Association office is open weekdays. Among its many activities, the association coordinates the annual Reunion weekend, publishes the quarterly Bulletin and sponsors an annual social event for each medical school class.

Since the association inaugurated the Annual Giving Drive in 1978, lectures, scholarships and student loans funded by alumni contributions have enriched the programs and goals of the School of Medicine on a daily basis.

Affiliations

Recognizing the importance of providing excellent clinical experiences with stimulating faculty and mentors, the School of Medicine has developed a comprehensive network of affiliations designed to encompass the continuum of medical care including ambulatory, acute hospital, home care, rehabilitation and chronic care. In all programs medical students are trained by and fully supervised by School of Medicine, University of Maryland Baltimore faculty.

Over the past five years a significant effort to coordinate, expand and improve the ambulatory care experience has resulted in an extensive ambulatory care network of opportunities. Clinical experiences are offered in multi-disciplinary teaching clinics, faculty practices, community clinics, private practices and hospital-based ambulatory care programs. Model geriatric clinical education programs, designed at three facilities with large cohorts of elderly patients, serve as stimulating educational experiences where computer-assisted learning augments the faculty preceptor patient experience.

Academic tertiary care experience, demonstrating state-of-the-art technology and ongoing exciting clinical research, is offered at the three major affiliates: the University of Maryland Medical System, the Baltimore VA Medical Center and Mercy Medical Center. Additionally, community hospitals with major commitments to the importance of a teaching environment serve as outstanding opportunities for primary and secondary health experiences.

A successful network of community, state and federal psychiatric facilities has resulted in a widely acclaimed statewide program for psychiatry training. Special clinical research experience in psychiatry is additionally offered at the Institute of Psychiatry and Human Behavior and at the Perry Point VA Medical Center.

Experience in rehabilitation, home care and chronic medical care is offered through several facilities, each offering special aspects of expertise for those who wish to pursue psychiatry, neuro-rehabilitation and geriatrics. The following sites have formal affiliations with the School of Medicine: Baltimore Veterans Affairs Medical Center, Walter P. Carter Center, Children's National Medical Center (Washington), Deaton Hospital, Franklin Square Hospital, Greater Baltimore Medical Center, Harbor Hospital Center, Johns Hopkins Hospital, Kernan Hospital, Johns Hopkins Bayview Medical Center, Maryland General Hospital, Mercy Medical Center, National

Orthopedic Hospital, St. Agnes Hospital, Sinai Hospital of Baltimore, Sheppard and Enoch Pratt Hospital, Springfield Hospital Center, Spring Grove Hospital Center, Union Memorial Hospital, University of Maryland Medical System (includes Shock Trauma and Cancer Center), Western Maryland Area Health Education Center (AHEC) and York Hospital (PA).

The University of Maryland Medical System (UMMS)

The University of Maryland Medical System is a private, not-for-profit teaching hospital system that provides a complete range of inpatient and outpatient services to more than 300,000 people each year. UMMS is a national and regional referral center for trauma, cancer, neurocare, cardiac care, women's health services, children's health services and physical rehabilitation. It also has the largest kidney transplant program in the world. The medical system has 9,000 employees, 1,900 licensed beds, and gross revenue of \$900 million. The major components are:

The University of Maryland Medical Center in downtown Baltimore (which includes University Hospital, the Greenebaum Cancer Center, the R Adams Cowley Shock Trauma Center and the Maryland Hospital for Children) was previously an agency of the state of Maryland. It is the primary clinical setting for the University of Maryland School of Medicine. It is dedicated to providing exemplary health care for the people of Maryland, to preparing students and physicians-in-training for the practice of medicine and the allied health professions and to carrying out research to improve the quality of health care.

Since its founding in 1823, the medical center has become a major tertiary care center that offers a full range of specialized medical and surgical services. In recent years, as the number of health care facilities in urban centers has decreased, the medical center has assumed increasing responsibility for its surrounding community. As a result, more than 100,000 city residents look to the University of Maryland Medical Center their primary source of health care.

With 724 beds and located in the heart of Baltimore's UniversityCenter district, University of Maryland Medical Center is one of the nation's busiest. In one year it records approximately 30,000 inpatient admission, 200,000 outpatient visits, and 1,500 births. Every day, nearly 5,000 people pass through the hospital's doors. The senior medical staff – more than 800 physicians – is comprised of the clinical faculty of the School of Medicine who supervise training of the more than 600 graduate-physician house staff as well as the medical students.

Because of its combined professional and academic environment, many outstanding treatment programs and research facilities have been developed at the medical center. The R Adams Cowley Shock Trauma Center and the University of Maryland Greenebaum Cancer Center are two prime examples.

The R Adams Cowley Shock Trauma Center, linked with the statewide network of emergency communications, transportation and medical care facilities, is second to none. It provides high-speed emergency service to more than 6,500 critically injured persons each year – the most severe multiple trauma cases in the state – with an impressive 96 percent survival rate. A heliport on the roof of the \$44 million R Adams Cowley Shock Trauma Center facilitates rapid transport of the most severely injured and acutely ill patients.

At the Greenebaum Cancer Center, collaboration between research scientists and research clinicians has resulted in notable efforts in treating breast, lung and blood-related cancers. It was at the cancer center that researchers pioneered the freezing of a leukemia patient's own platelets for later use during relapses. The center's physicians work closely with other oncology programs within the hospital, tailoring the balance among surgery, radiation and anticancer drugs for each patient's optimal treatment plan. The cancer center is nationally known for its blood and marrow transplant program and its research into new drug development.

Other centers of excellence include:

- University of Maryland Hospital for Children, which provides the full range of pediatric services. It houses the state's largest neonatal intensive care unit.
- The solid organ transplant program, which performs more than 300 transplants each year, with capabilities in kidney, pancreas, simultaneous kidney-pancreas, liver, heart and lung. The comprehensive program continually surpasses national survival rates in every area.
- The Maryland Brain Attack Center, where physicians offer new treatments that help prevent disabilities from stroke by rapidly restoring blood flow to save brain tissue. The institution's neurosurgery department has attracted national attention for its innovative techniques used in the treatment of brain tumors. A Gamma Knife Center allows patients with inoperable brain tumors a new chance for survival. The Center for Advanced Fetal Care, Multiple Sclerosis and Magnetic Resonance Imaging Centers all offer the most advanced technology possible.
- University Sports Medicine provides injury prevention and treatment services to everyone from professional athletes, such as the Baltimore Ravens, to college athletes, such as the University of Maryland Terrapins, to weekend warriors.
- An affiliation with the Institute of Human Virology, where world renown experts led by Dr. Robert Gallo investigate the cures and prevention of chronic viral diseases, with AIDS as a top priority.

Along with its partner, the School of Medicine, the University of Maryland Medical Center has met the rapidly changing health care market with expanded services. These services include:

- Four primary care sites in West Baltimore.
- Specialty care in the suburbs in Hartford and Anne Arundel County; and primary and specialty care at Shipley's Choice in Anne Arundel County.

The University of Maryland Medical Center has grown both professionally and physically over the years. Today, through partnerships with the University of Maryland's professional schools, it is the training site for pharmacists, social workers, dentists, nurses and other health professionals and technicians. This interprofessional environment is a unique and valued characteristic of the University of Maryland Medical Center.

In January 2000, the Medical Center launched construction of a new 350,000 square-foot building which is presently designed to house components of its emergency services, surgical services, diagnostic imaging, and women's and children's programs. It will stand adjacent to the Homer Gudelsky Building, which opened in 1995.

North Arundel Hospital is a 329-bed acute-care community hospital in Glen Burnie, Maryland. Primarily serving residents of northern Anne Arundel County, this suburban community hospital is located approximately five miles south of Baltimore, Maryland, and 25 miles northeast of Washington, D.C. The facility has numerous areas of specialization including orthopedics, cardiology, geriatrics and oncology.

Mt. Washington Pediatric Hospital in Baltimore offers inpatient, outpatient, day programs, and home-based care for infants and children. The facility also has a 15-bed off-site hospital in Prince George's County.

Maryland General Hospital is a 300-bed community teaching institution that serves as the cornerstone of Maryland General Health Systems, Inc., a comprehensive network covering the continuum of care needs for more than 100,000 patients annually.

Kernan Hospital, a 152-bed orthopaedic and rehabilitation hospital that serves adults and children with orthopaedic and neurological conditions with a full range of inpatient and outpatient programs. Kernan includes the William Donald Schaefer Rehabilitation Center with special units for stroke, multiple sclerosis, spinal cord and head injury, and geriatric patients with complex medical problems.

Deaton Hospital, a 324-bed, long-term care facility that includes a chronic care facility and a nursing home.

VA Maryland Health Care System (VAMHCS)

The VAMHCS consists of three Maryland VA Medical Centers located at Baltimore, Fort Howard and Perry Point, and an independent 120-bed Rehabilitation and Extended Care Center. Medical faculty, students and researchers primarily interact with the health care system's Baltimore facility. The Baltimore VA Medical Center was designed to support a large outpatient program with extensive primary care as well as subspecialty experiences and ambulatory surgery. A growing network of community-based outpatient clinics now provide additional access for patients in the Baltimore metropolitan area, Southern Maryland and Maryland's Eastern Shore. The VAMHCS houses the first radiology service in the nation to offer a completely filmless program, made possible by new advances in computer archiving and digital processing of images. Diagnostic quality radiographs are available on more than 80 monitors throughout the Baltimore VA Medical Center which provides improved patient care and expanded opportunities for student and house staff education.

The VAMHCS contains a fully computerized patient information system and a highly advanced electronic medical record. The Baltimore site has bedside terminals which allow for ease of patient care and reduced non-productive time for students. The information system allows instantaneous clinical queries for clinical research and continuous improvement in patient care. Major increases in support staff assigned to house staff teams has resulted in decreased "scutwork," activities for students and residents as support staff is more frequently available for routine phlebotomy, intravenous line adjustments, escort services and clerical support services. A major reconfiguration of nursing and support staff combined with computer designed programs has increased the efficiency of the medical care so that students, house staff and faculty can better spend their time on direct rather than indirect patient care, and on stimulating educational and clinical research areas rather than on cumbersome support delivery problems.

In the disciplines of medicine, surgery, psychiatry, neurology, anesthesiology, pathology, radiology, rehabilitation medicine, geriatrics and ambulatory care, there is close integration of the faculty, resident and undergraduate levels of the School of Medicine. More than 70 investigators have funded research programs in areas including infectious disease, geriatrics, exercise physiology, cardiology, immunology, neurology, oncology and schizophrenia. For the past five years, the VAMHCS has been among the top three facilities in research funding in the nation.

Area Health Education Center Program (AHEC)

One of the University of Maryland Baltimore's commitments to improving health care delivery in primary care is the Area Health Education Center (AHEC) program.

The AHEC program has been developed to provide comprehensive health care education and training for undergraduate and graduate medical students, as well as for students from the other UMB health profession schools. AHECs attract students, interns and residents to rural and underserved areas, fostering their interest in practicing in such sites. AHEC activities promote increased numbers of physicians and other health care professionals, encourage the development of health care facilities, provide multi-disciplinary and interdisciplinary training for health professionals, and increase capabilities for the existing program of graduate and continuing medical education and health training.

The University of Maryland School of Medicine has directed the Maryland AHEC Program for over 20 years. The Maryland AHEC system is comprised two rural centers: the Western Maryland AHEC and the Eastern Shore AHEC. The Western Maryland AHEC, established in 1976, is located in Cumberland, a rural community in Allegany County. The Eastern Shore AHEC, domiciled in Cambridge at the Eastern Shore Hospital Center, has been in operation since 1995. Both centers afford students the opportunity to understand and experience the valuable and rewarding benefits of delivering primary health care in a rural environment.

School policy requires that students spend eight weeks of their senior year in clinical education at an ambulatory site. Some students elect to spend this mandatory rotation at rural sites. Additionally, senior medical students may choose a rotation at either AHEC site as a primary care elective. These experiences are designed to encourage students to consider practice in similar settings and to gain a firm appreciation of the special health needs of rural populations.



Student Life

Office of Student Affairs

The Office of Student Affairs is designed to provide guidance, advice, help and administrative services to students enrolled in the School of Medicine. In addition, the office is responsible for monitoring student registration, progress and advancement, graduation and all aspects of student life related to undergraduate medical education. To this end the office employs one full-time associate dean, two part-time assistant deans and support staff.

While the entire staff is available to offer assistance to all students, some staff members also assume a specialty area within their overall functions. These specialty areas include senior elective advising, student fellowships, career and residency advising, and counseling.

Electives

There is no elective requirement during the pre-clinical years, although many faculty members offer elective experiences. Offerings may include such diverse topics as cardiovascular pathology, medical rehabilitation, nutrition, alcohol and drug abuse and many research projects. Some experiences may have prerequisites and may be open only to sophomores.

Residency Planning

The Office of Student Affairs maintains a residency advisement program that includes counseling, referral to faculty, alumni and community resources and workshops on residency selection provided during the junior year. Recent graduates are surveyed periodically so that feedback from a number of residency programs of interest to graduates is kept as current as possible.

We have recently initiated the MedCareers program. This program, developed by the American Association of Medical Colleges, helps students select careers in medicine, using a developmental approach. In the first year, the program, available on the Internet, administers questionnaires that allow the student to find areas of strength and interest. In the second year, students are encouraged to “try on different hats,” by participating in various specialty interest groups. In the third year, students are given more specific information about specialties and may participate in workshops that focus on strategies for considering various clinical specialties. In the fourth year, the program is integrated with other activities in the school to help students solidify career choices.

Human Dimensions in Medical Education (HDME)

The HDME Program provides opportunities for informal activities among students and faculty outside the classroom setting. These range from social gatherings to small group discussions of concerns and feelings related to the personal and professional aspects of medical education and practice.

Students may elect to participate in the HDME Program at any point in their medical school career. Many enter the program by attending the pre-freshman orientation retreat held in late August. The retreat is attended by students from all levels of training, faculty members and, in many cases, spouses or close friends. Thus, participants are provided an opportunity to get acquainted in an informal and intimate off-campus setting. Much of the time at the retreat is spent in intensive small group sessions. Topics of discussion are determined in each group, but typically include adjustment to medical school, the impact of a medical career on domestic life and the problem of setting priorities among various professional and personal demands. Recreational activities also are included in the four-day experience. Relationships formed at the retreat often continue back on campus and even beyond graduation.

HDME was conceived at The Center for the Study of the Person in LaJolla, California. The program is planned and operated locally by a student-faculty committee. One goal of the program is to provide an environment in which students and faculty can develop a bond during the four years of medical school. Another desired outcome is the development of effective communication and listening skills that will enable medical students, house officers and faculty members to become better health care providers.

White Coat Ceremony

The white coat is a traditional symbol of the medical clinician and scientist. It has come to represent the knowledge, skill, and integrity of the medical professional and the highest standards of professional work, whether in the classroom, laboratory or clinic. Held in November or December, the White Coat Ceremony officially welcomes freshmen students into the professional community. In mid-fall students are asked to provide a list of two or three people whom they would like to invite to this ceremony, generally parents or partners.

Following a continental breakfast, those attending hear a number of short presentations, with each speaker addressing the issue of professionalism in medicine from his or her own perspective. Speakers include representatives of the medical school administration, the pre-clinical and clinical faculty and the student body. Freshmen students are then called individually to the stage to receive their white coats from members of the faculty, as well as a copy of the school's Code of Professional Conduct. Acceptance of the white coat is an affirmation that, along with acquiring the requisite knowledge, the student will accept responsibility for developing and maintaining professional attitudes and behaviors in work and in relationships with classmates, teachers, patients and the community-at-large.

The Office of Student and Faculty Development

The Office of Student and Faculty Development was designed to provide vision and leadership in addressing faculty and student development while creating opportunities for them to reach their fullest academic and personal potential. Responsibilities of this office are to:

- Work collaboratively with other offices in the presentation of a comprehensive faculty development program, including topics in professional development and teaching skills for campus and community-based faculty.
- Provide leadership in the school's effort to represent and collaborate with others in our diverse, multi-cultural scientific community through recruitment efforts and skill development for students and faculty.

- Coordinate a mentoring program for students in which regular meaningful contact between students and faculty works to guide and promote their career to its greatest potential.
- Promote appreciation of life-long adult learning among students, residents, and faculty.
- Advertise award, scholarship and fellowship opportunities for students and faculty, and assist in the processing of materials for these opportunities.

The Office of Student and Faculty Development coordinates programs for high school and college students that are designed to increase the number of students entering the medical profession. The office works closely with the director of recruitment in the Office of Admissions to recruit a diverse group of talented students to the School of Medicine, the Office of Academic Development to retain these students, and the Office of Student Research to offer them opportunities in research projects.

For additional information contact:

Donna Parker, MD

Associate Dean for Student and Faculty Development

University of Maryland School of Medicine

655 West Baltimore Street—Room M-004

Baltimore, Maryland 21201

(410) 706-7689

Student Government

The Student Council is the organization recognized by the medical school administration as the official representative body of the registered students at the School of Medicine. Council duties include disbursing student activities funds according to the needs of its members and coordinating student input in institutional administrative policy decisions. Student Council officers serve as student representatives to national meetings of organizations that guide national educational and medical policies. The council also conducts elections of all class officers.

Student Organizations

Alpha Omega Alpha (AOA). Election to AOA, the national medical honor society, is based on scholastic achievement, service to the school, qualities of leadership, integrity and fairness to colleagues. Students are elected at the end of their junior year or the beginning of their senior year.

Members coordinate programs and lectures with the goal of furthering academic interest and stimulating curiosity. Programs of recent years have included a lecture series on topics in the history of medicine, an EKG interpretation course, sponsorship of a Clinical Visiting Professorship, campus tours for prospective medical students, and Junior/Senior Night, an orientation to the match process for junior medical students.

American Medical Association—Medical Student Section (AMA-MSS). The AMA-MSS is the medical student section of the American Medical Association (AMA) that provides leadership positions at the local and national levels, the opportunity for involvement in the medical political process and medically oriented programs for students and the community. At the University of Maryland, the AMA-MSS sponsors several events such as an annual used book sale in August and

a morning donut and bagel sale. Members of the AMA-MSS receive the Journal of American Medical Association (JAMA), American Medical News, AMA Member Matters and Pulse, a national medical student newsletter.

Each year the AMA-MSS at the University of Maryland elects and sends a delegate and alternate delegate to two meetings: the Annual AMA Meeting in June, and the Interim AMA meeting in December. Traditionally, the delegate is a second-year student while the alternate is a first-year student.

American Medical Student Association (AMSA). The University of Maryland Chapter of the American Medical Student Association (AMSA) offers the opportunity to become actively involved with a group of dynamic, concerned medical students at the local and national levels. The immediate benefit of membership is working and socializing with peers in friendly, informal settings through participation in a wide variety of activities of interests to the membership.

AMSA is involved in many service activities: microscope and used book sales, coordination of the noontime films and lectures, the student phone and housing directories, orientation activities, workshops, projects and parties. Other activities include local and national legislative monitoring and lobbying, clinic staffing, public education efforts and events coordinated with other school organizations. Fundraising projects help to defray expenses of members attending workshops and regional and national meetings. In addition, AMSA is willing to sponsor activities that are proposed by its members.

On the national level, AMSA promotes the interests of public health, and the medical students serve as a forum and information clearing house for issues of major importance; e.g., AMSA's position on the current administration's proposals as they relate to health care reform and medical education. Benefits to AMSA members include a four-year subscription to the student journal *The New Physician*, special interest task force newsletters, informational booklets, discounts on medical texts, life insurance policies, the AMSA Mastercard, the "HEAL Deal" for repayment of HEAL loans at lower interest rates, a low-interest loan program with increasing monies available each successive year of school, and unique educational experiences both at home and abroad—all for a single membership fee for all four years of school. The Annual National Convention is open to members (partially subsidized by chapter funds) and is a rare and valuable experience. It features four days of guest speakers, a multitude of exciting health care presentations and workshops, opportunities to share in national policy formulation, a chance to meet other medical students and socializing opportunities.

American Medical Women's Association (AMWA) Student Branch. The AMWA Student Branch at the University of Maryland is a dynamic group responsive to the needs of female medical students. While its first commitment remains to provide support and promote friendship among students, faculty, and physicians, AMWA also provides a network where students can meet and discuss issues such as lifestyles in medicine, career choices, women's health, and political issues important to women and the student body at large.

AMWA is involved in a variety of activities on campus including pot-luck dinners where special guest speakers address issues, monthly noon-time business meetings and get-acquainted gatherings with students and faculty. Although AMWA is primarily concerned with issues related to women, all AMWA functions are open to the entire student body.

Asian Professional Students Association. The Asian Professional Students Association (APSA) was formed by a group of medical students in 1984, and since then has grown to include members of other schools at UMB. APSA is open to all students, teaching staff and employees regardless of race, cultural background, sex and country of origin. The goals of the association are to encourage

dialogue among fellow students of different cultural backgrounds, and to provide a platform for those who appreciate Asian culture. APSA also sponsors educational and social activities for its members and friends.

The Better Half. “The Better Half” is a support group open to all medical students and their significant others who are interested—husbands, wives, boyfriends, girlfriends. The group’s goal is both social and supportive. Maintaining a relationship while in medical school can be difficult and knowing other people in the same situation can be helpful to both medical students and their partners. Gatherings such as the pot-luck dinners, wine tasting, wine and cheese and pizza parties are popular affairs. A partner is not needed to attend functions.

Big Sib Program. Each year an upperclassman (usually a sophomore) “adopts” an entering freshman as his/her little sib. Newly admitted students receive correspondence from their fellow big brothers/sisters during the summer prior to their entry. The program is sponsored by students with support of the admissions committee, and is designed to allow entering students to address their questions and concerns to fellow students who have already experienced life as a medical student. Moral support from big sibs often makes the transition easier for incoming students.

Bioethics Club. The Bioethics Club is a relatively new addition, formed to explore ethical issues faced by students and physicians in the medical world. The group is led by Dr. Henry J. Silverman, editor of the University of Maryland Medical System’s publication *Health Care Ethics*, and member of the hospital’s Ethics Review Committee. At bimonthly meetings, actual cases are reviewed and active discussion concerning moral and ethical issues related to particular situations or to new legislative rulings across the country is encouraged. Students also have the opportunity to attend meetings between patients, their families, physicians and members from the review committee and observe the often difficult process of making decisions concerning what course of intervention and care is appropriate for each patient. Students, faculty and administrators are all encouraged to attend.

Christian Medical Society. The Christian Medical Society (CMS) at UMB is a local chapter of a national organization which meets weekly for fellowship, prayer and discussion. CMS is committed to providing Christian fellowship and support for medical professionals, encouraging Christians to mature in their faith, challenging them to integrate their medical careers into their lives in Christ and providing an environment in which non-Christians can explore the claims of Christ. CMS presents meetings on Bible study, short-term missions, ethics, Christian family life within the medical profession and evangelism. Dinner is shared every third week. In addition, CMS volunteers help staff the Baltimore Rescue Mission which provides medical care to the homeless. Members also have the opportunity to participate in local, regional and national conferences. All students, faculty and hospital personnel are welcome.

Complementary Medicine Club. The Complementary Medicine Club strives to introduce students and faculty alike to various types of therapy which complement traditional western medicine. Among these complementary medicines are acupuncture, herbal medicine and music therapy. The Complementary Medicine Club meets about once every month for an hour-long talk and lunch.

Emergency Medicine Interest Group. The Emergency Medicine Interest Group (EMIG) is a student organization whose mission is to expose students to emergency medicine as a career and give students an opportunity to learn skills commonly used in emergency situations. To this end, EMIG sponsors blood drawing, i.v. and suture labs, ambulance ride-alongs and emergency room observation time. EMIG also sponsors talks and luncheons with emergency medicine residents

and faculty on topics such as applying for emergency medicine residency and the history of emergency medicine. EMIG members are actively involved in research in the emergency department and have attended emergency medicine physicians' national conferences.

Family Medicine Interest Group. The Family Medicine Interest Group (FMIG) is sponsored by the Maryland Academy of Family Physicians and the Department of Family Medicine. Membership fees for first-year members are paid by the Maryland Academy and members receive monthly professional journals free of charge. FMIG sponsors events and lectures relevant to family medicine throughout the year. FMIG also encourages student leadership at the state and national levels.

Gertrude Stein Medical Society. The Gertrude Stein Medical Society is a group of medical students whose goal is to foster support among gay, lesbian and bisexual students and to encourage interaction and education among all students at the University. The group seeks to help other students and faculty understand the special needs of the gay and lesbian community through education and community service. The group meets bimonthly with potluck dinners and other social events. Some members also volunteer at the Chase-Brexton Clinic. The group is open to all students and confidentiality is assured.

Human Dimensions in Medical Education (HDME). The HDME program (described earlier under Office of Student Affairs) is active through much of the year in planning the annual retreat as well as other activity programs. Students are welcome to participate in these "behind the scenes" activities that are so important to the program's success.

Internal Medicine Interest Group. This group helps students learn about careers in internal medicine. It is student run with faculty input. Opportunities for volunteerism and mentoring are encouraged.

Jewish Medical Students Organization. The Jewish Medical Student Association encourages all medical students, regardless of specific affiliation (i.e., orthodox, conservative, reform or non-Jewish) to join and participate in the group's activities. The association works closely with the Jewish Community Center's Office for Graduate Studies which provides sponsorship for many of its activities, including Friday night dinners, talks on Jewish medical ethics and the building of a sukkah. The association also works with other schools on campus and in the Baltimore area to plan joint activities.

Maryland State Medical Student Association. The Maryland State Medical Student Association (MSMSA) is a component of the Medical and Chirurgical Society (Med-Chi) of the State of Maryland, which is a state component of the American Medical Association. The MSMSA is involved in issues of health care, medical education and peer review, especially in the state of Maryland. MSMSA and AMA memberships are usually solicited together, and membership benefits include subscriptions to the Maryland Medical Journal, and the AMA News. The MSMSA provides active student representation in Med-Chi and the AMA. Also, there are several leadership opportunities for students in the AMA through MSMSA.

Medical BreakAway. Medical BreakAway is a nonprofit organization established by medical students at the University of Maryland. The organization provides opportunities for medical students of all years to volunteer in international medical clinics in need during spring and summer breaks. The program emphasizes both medically oriented volunteer work and socially related community service projects.

Medical Students for Choice. The University of Maryland's Medical Students for Choice (MSFC) Chapter is part of a broad organization of medical students at schools throughout the nation. The organization was founded by students who were concerned about the lack of abortion education in medical schools and residencies, the severe shortage of abortion providers, and escalating violence against providers. The University of Maryland Chapter hosts educational events, creates partnerships with other medical student groups and local pro-choice organizations, and works to incorporate abortion issues into the medical school curriculum.

Organization of Student Representatives. The Association of American Medical Colleges (AAMC) was founded over 100 years ago to improve the quality of American medical education. It now includes membership of 125 medical schools, 85 academic societies such as the American College of Physicians, and 435 teaching hospitals. It maintains numerous data sources available to its members and works cooperatively with other medical organizations such as the American Medical Association, and provides information and testimony to the U.S. Congress and other federal agencies concerning medical and health-related issues.

The Organization of Student Representatives (OSR), the AAMC's student voice, is composed of one student representative from each medical school choosing to participate. OSR members gather at an annual meeting each autumn to discuss matters of concern to the nation's medical students and to elect an administrative board. The twelve-member administrative board meets quarterly with the boards of other AAMC councils to formulate AAMC programs and policies reflecting student views. OSR business is also conducted at regional spring meetings. The OSR delegate operates to channel information from the AAMC to the medical student body-at-large and vice versa on issues of medical education such as the match, changes in medical curriculum and student indebtedness. Thus, the OSR serves as an effective liaison between the nation's students and medical policy-makers to ensure consideration of student views.

Pediatrics Interest Group. This group helps students learn about careers in pediatrics. It is student run with faculty input. Opportunities for volunteerism and mentoring are encouraged.

Pediatric Pals. Pediatric Pals is a community service organization created by medical students for medical students. It provides a convenient, flexible and fun community service organization. Pals visit children who are in the pediatrics ward at the University of Maryland Medical System either on a weekly basis (1-4 hrs/wk) and/or during monthly parties on Saturday/Sunday afternoons. Pals play Nintendo, read books, sing, rock babies or just "hang out" and be a friend to scared, sad or lonely children. After a brief orientation, a Pal can choose as much or as little a time commitment as desired.

Project H.O.P.E.: Helping Others Through Palliative Efforts. Project H.O.P.E. is an organization concerned with the needs of critically and terminally ill individuals of all ages. As a medical student, the ability to bring physical comfort to patients in the form of medications and therapies is obviously limited, yet the capacity to bring social and emotional comfort to them is limitless. Through potluck dinners, instructional workshops, medical rounds, and other activities, the members of Project H.O.P.E. reach out to the residents of the American Cancer Society Hope Lodge, to the children and families of the Baltimore Ronald McDonald House, and to the patients of palliative care clinics and hospice programs in the Baltimore area. Project H.O.P.E. also promotes awareness of various end-of-life issues through noontime speakers and luncheons.

Sports Medicine Interest Group. This group helps students learn about careers in sports medicine. It is student run with faculty input. Students interact with faculty who practice sports medicine-orthopaedics, family medicine, internal medicine, pediatrics and emergency medicine are represented. Students will have opportunities to shadow physician and physical therapists involved in this field.

Student Interest Group in Neurology (SIGN). SIGN educates students on the field of clinical neurology as well as other clinical neurosciences. Activities throughout the year include speakers (clinical neurologists, residency directors, and other clinical specialists), neurology workshops, clinical neuroscience lectures, and a mentoring program for students.

Student National Medical Association (SNMA). The University of Maryland Chapter of the Student National Medical Association (SNMA) is an organization of under-represented minority medical students that seeks primarily to provide academic and social support for minority medical students at the University of Maryland School of Medicine. The SNMA organizes study groups, provides valuable course information and review material, and facilitates organized discussions on course requirements and strategies between upperclassmen and entering students. The SNMA also seeks to involve itself in health and educational activities which benefit the surrounding community and its youth. In past years the SNMA has been involved in tutoring local high school students, presentations to inform high school and college students of medical school opportunities and health screening programs in the community. In addition, the SNMA has also sponsored activities for Black History Month which have included seminars and films. SNMA is active in programs that promote greater interaction among minority students, physicians, faculty and alumni.

Publications

Academic Handbook. The Academic Handbook is the “official word” on medical school policy and life, written by those who run the various programs described—administrators, faculty, students. Although the book is prepared through the Office of Student Affairs, student participation and feedback contribute significantly to its effectiveness.

AMSA Directory. With financial support from the Office of Student Affairs and the Office of Admissions, the American Medical Student Association (AMSA) at UMB compiles a student address and telephone directory each fall. The book is available to all medical students at no cost.

Snowdays. Snowdays is a booklet written by the freshman class for entering freshmen. Designed to acquaint students with the University of Maryland Baltimore and surrounding areas and metropolitan Baltimore, it includes information on housing, eateries and entertainment that would be helpful to people new to the city. Snowdays was conceived in the hope of providing freshmen with information that might prove useful before starting the school year.

Student Answer Book. Published by the UMB campus, this book describes campus-wide services such as housing, student health, libraries, the bookstore, and athletic facilities, as well as policies in such areas as sexual harassment, smoking, alcohol and drug use, and violence.

The Yearbook (Terra Mariae Medicus). Since 1896 Terra Mariae Medicus has provided wide coverage of student life. It is a collection of moments and memories from the four years of medical school put together by the members of each senior class. Each senior receives a yearbook, the cost of which is included in the student activities fee.

Institutional Governance and Planning

The Committee System. Several committees are actively involved in shaping the School of Medicine, particularly the curriculum and other essential aspects of medical education. Students have a voice on these committees. The following committees/councils include students in their memberships.

Curriculum Coordinating Committee (CCC) and Subcommittees. The task of the Curriculum Coordinating Committee is to continually study and evaluate the curriculum and methods of instruction, to make recommendations concerning changes and innovations in the curriculum and instructional procedures, to make a continuing study of the student achievement evaluation process and to recommend changes when necessary. In addition, the CCC Subcommittees, i.e., Year I/Year II Committee and the Clinical Years Committee (CYC), each include student representatives elected by their classmates.

School of Medicine Council. Through the School of Medicine Council, representatives of the faculty, students, house staff, alumni and affiliated institutions and School of Medicine administration participate in the development of school policies. In addition, council members hear status reports from committees appointed by the dean. These include the reports of the Curriculum Committee, the Annual Admissions Report and those of the various search committees. The Council meets monthly during the academic year, offering students an excellent opportunity to develop an understanding of the issues affecting the operation and goals of the medical school. There are approximately 80 voting Council members, 11 of whom are students.

Judicial Board. Acceptable behavior within the academic community, including proper behavior on examinations, falls within the purview of the judicial review system and its functioning body, the Judicial Board. The system and operation of the board are defined in the “Statement of Ethical Principles, Judicial Review System and By-Laws of the Judicial Board,” which is printed in its entirety in the Academic Handbook and distributed to incoming freshmen at orientation.

The board consists of a chairperson appointed by the dean and representatives of the faculty and students in the medical school community. Any member of the community who directly witnesses an act that he or she deems unethical should report the incident in a signed letter to the chairman of the Judicial Board. The board will then investigate the issue and hold hearings, as defined in the aforementioned document. Findings of the board and its recommendations with respect to the accused are forwarded to the dean. Three student representatives, one each from the sophomore, junior and senior classes, are appointed by their class presidents.

Ethical Advisory Committee (University of Maryland Medical Center). This state-mandated committee is composed of about 25 physicians, nurses, social workers, administrators, clergy, attorneys and other personnel, and welcomes the input of students and residents as nonvoting participants. The committee advises hospital staff and families on requests regarding difficult ethical decisions such as life support for terminal patients, and also helps develop hospital policy regarding such critical situations. The committee also serves an educational function to hospital staff and reviews legal and legislative decisions.

Special Task Forces. On occasion, special committees and task forces are established to examine school policies or curriculum issues. Where these issues have direct relevance to students, the classes are frequently invited to send representatives to these functions. Major changes in policy or curriculum typically take two or more years to plan and implement, and this can be frustrating to

students who will be members of each class for only one year. At the same time, however, each group of entering students reaps the benefits of changes to which their predecessors have contributed and they now have the opportunity to leave a similar legacy to their successors.

Student Health Services

The Campus Health Office, located in University Family Medicine Associates (UFMA) offices at 29 South Paca Street, is open Monday–Friday from 8:00 am–4:30 pm. Students are seen for medical appointments by physicians, residents or a nurse practitioner at UFMA at the following times: Monday–Thursday from 8:30 am–7:00 pm, Fridays from 8:30 am–4:30 pm and Saturdays from 9:00 am–noon. After-hour coverage for emergencies is provided by the physician on-call at University Family Medicine.

The cost of most care provided at student and employee health is paid for through the student health fee. Gynecological services, including health maintenance (PAP smears, etc.), family planning and routine problems, are provided by the family physicians, residents or nurse practitioner. Birth control pills are available at a reduced cost for students receiving their GYN care through student and employee health/family medicine.

All students are required to have health insurance and an excellent insurance policy is available through the campus. At registration all full-time students must either purchase the UMB policy or waive it by showing proof of comparable coverage. The deadline for waiving the UMB policy is in mid-September. If proof of comparable insurance is not received at student and employee health by that time, the UMB policy must be purchased for each month the waiver is not presented. Demonstrated proof of comparable insurance is required each year the UMB policy is not purchased.

Hepatitis B is an occupational illness for health care providers. It has serious consequences and can even be fatal. Immunization against Hepatitis B is required for medical, dental, dental hygiene, nursing, medical technology and PharmD students. The series of three immunizations is given at the Campus Health Office.

All new students are required to complete a Report of Medical History and an Immunization Record form that documents immunity to childhood illnesses. Students failing to present these completed forms as freshmen will not be permitted to register for the sophomore year.

Students' family members can be seen at Family Medicine Associates. The family physicians provide care for the entire family, including obstetrical and pediatric care. For additional information, call (410) 328-8792.

Counseling Center

The Counseling Center provides professional counseling services to students and their families. Students are encouraged to use Counseling Center services for help in dealing with any kind of personal problems they may have. Some of the more common problems that prompt students to seek help include stress, relationship problems, adjustment to changes in school or home life, loss of a loved one and problems with drugs, alcohol or food.

Counseling services are completely confidential and no information is shared with administration or faculty without the student's written permission. This is not a training site; students are always seen by a professional — a social worker, psychologist, psychiatrist, or addiction counselor. Counseling is done on an appointment basis and student's class schedules can be accommodated in scheduling appointments. There is no out-of-pocket expense to use this service. Call (410) 328-8484 for additional information.

Housing

Baltimore is a fun, friendly city with many affordable and convenient housing options. The brochure *Housing Options* describes on- and off-campus options for UMB students; it is available through the admissions office or by calling the Residence Life Office at (410) 706-7766.

The University Housing Office administers the housing program for University-owned housing, which can house approximately 275 students in two resident locations. The Student Union has two floors of traditional dorm-style rooms capable of housing up to 80 students in single or double rooms. All rooms are furnished with bed, desk and closet and each floor has a kitchenette, lounge and restroom/shower facilities. A laundry room with coin-operated washers and dryers is located on the ground floor of the Student Union building.

Additionally, the University owns 80 apartments in a traditional row house format known as Pascault Row. This complex includes efficiency, one-bedroom and two-bedroom arrangements. Each apartment is furnished and contains a living area, kitchenette and private bath and is designed to accommodate one-to-four students. The Pascault Row complex also has a laundry room with coin-operated washers and dryers and each apartment has access to storage in lockers on the ground floor.

For housing application and/or information contact:

University Housing Office
Baltimore Student Union, Rm. 122
621 W. Lombard Street
Baltimore, Maryland 21201-1575
(410) 706-7766

The University of Maryland's off-campus housing program is a self-service program designed to help students identify housing options convenient to the University. Although the housing program is coordinated by University personnel, it is offered only as a convenient way to facilitate the housing search. The University does not inspect the properties listed through this service and therefore strongly encourages students to personally do so before signing a lease. The University has no relationship with the property owners, landlords or realtors who list property through this service.

The University Housing Office maintains a kiosk in the lobby of the Baltimore Student Union with current information on apartments for rent, rooms for rent, house or condominium for rent or sale and roommate referral. There are also other types of off-campus housing information available at this kiosk such as *Apartment Shopper's Guide* and *Home Buyers Guide*.

A website has been created for the University at www.UMB-Apartment-Guide.com. Questions related to off-campus housing can be addressed by calling (410) 706-8087.

Athletic Center

The campus Athletic Center, located on the tenth floor of the Pratt Street Garage [(410) 706-PLAY], offers a variety of programs including intramural sports, fitness/wellness activities, informal recreation, mini-courses and special events. The facility is equipped with two basketball and volleyball courts, a squash court, an expanded weight room with free weights and Paramount equipment, stationary bikes, stair, treadmill and rowing machines and areas to stretch. There are men's and women's locker rooms with a sauna and showers. Students are admitted free with valid student ID. Paid positions for students are available at the Athletic Center.

Intramural sports include basketball, volleyball, racquetball, squash, tennis and softball for men, women, coed and open competition.

It is the Athletic Center's goal to provide a comprehensive fitness and wellness program on campus. Participation in regular physical activity generally maintains or improves physical and mental well being. The center offers a variety of aerobic classes, a total conditioning class, mini-screening, fitness walking program, and fitness assessments. Individual fitness assessment includes tests for heart rate, blood pressure, weight, flexibility, cardiovascular endurance, body composition and muscular endurance. Participants receive personal evaluation of their fitness levels along with specific suggestions for developing a healthy lifestyle.

In conjunction with the University police the center also offers Rape Aggression Defense (RAD), a women's self-defense course. Sessions are offered throughout the year and are taught by trained and certified instructors.

University of Maryland Baltimore students may also use the athletic facilities at UMBC which include both indoor and outdoor Olympic-size swimming pools, outdoor hard-surface tennis courts and Nautilus weight-training equipment. A shuttle bus operates between the two campuses

Baltimore Student Union

Many campus-based student services are housed in the Baltimore Student Union. Administrative offices include the Assistant Vice President for Student Affairs, Associate Dean of the Graduate School, the Graduate School Admissions Office, Auxiliary Services Office, Housing Office, Student Financial Aid, Records and Registration, the University Student Government Association and the Graduate Student Government Association Offices, Student Services Office for Disabled and International Students, Student Transportation Services and a Writing Clinic. In addition, the Baltimore Student Union houses the University Bookstore, a deli, the Courtyard Cafe, a commuter lounge with full-service vending, TV lounge, meeting room, an ATM machine, laundry room and two floors of dormitory rooms.

Parking and Transportation

On-campus parking is available to students. Commuters will first have to purchase a parking permit (\$1.00) which allows campus parking but does not guarantee a space. Commuters may park in the Lexington Garage and Koesters Lot (Lexington and Pine Streets) at the current student rate of \$3.50 per day on a first-come, first-served basis.

Students who live in on-campus housing pay for parking by the semester or year and are guaranteed 24-hour parking in a garage adjacent to their residence facility. For more information about parking on campus, write Parking and Commuter Services, University of Maryland Baltimore, Baltimore, Maryland 21201 or call (410) 706-6603.

Students who live in the communities adjacent to UMB can use the caravan shuttle, which operates in the evenings year round. An intercampus shuttle provides transportation between the University of Maryland Baltimore County (UMBC) and UMB. For schedules and information on either of these shuttles call the Parking & Commuter Services Office at (410) 706-6603.

Public transportation makes the campus accessible by bus, subway and light rail. More than a dozen MTA bus routes stop in the campus area. The Baltimore Metro (subway) runs from Charles Center downtown to Owings Mills in northwestern Baltimore County. A light rail line offers service with park-and-ride accommodations from Hunt Valley in northern Baltimore County to Glen Burnie in Anne Arundel County. The UniversityCenter stop is located at Baltimore and Howard Streets.



School of Medicine Departments

Anatomy and Neurobiology

Professor and Chair

Michael T. Shipley, PhD

The brain is a major frontier in biological research. Significant progress has been made in recent years in understanding the brain, from the level of molecular genetics and neural circuits to behavior, the final product of neural activity. The Department of Anatomy & Neurobiology focuses its energies investigating brain organization and function in medical, graduate and post-doctoral education. An outstanding heavily funded faculty, modern well-equipped laboratories and state-of-the-art instrumentation make this effort highly successful and internationally visible.

FACULTY RESEARCH INTERESTS

Major research efforts in the areas of developmental neurobiology, chemical senses and neural networks have been added to existing strengths in cellular neurobiology and reproductive neuroendocrinology. A wide variety of research opportunities is made possible by extensive collaboration among departmental faculty and neuroscientists in other departments and at other institutions. Departmental faculty investigate questions from the molecular to the system level, from gene expression through assembly and function of specialized cell-membrane domains to development, function and plasticity of neuronal networks. Our faculty apply contemporary molecular, physiological and anatomical techniques to these questions. Several laboratories use organotypic slice cultures to investigate the development and function of neural networks.

UNDERGRADUATE MEDICAL PROGRAM

The medical educational goal of the Department of Anatomy & Neurobiology is to provide a basis for understanding the development, structure and function of the human body. To this end, anatomy & neurobiology faculty are major participants in two integrated teaching blocks, Blocks II and VI, and have minor teaching involvement in Blocks IV and VII. Block II, Structure and Development, combines gross human anatomy, microanatomy (histology), embryology, radiology, surgery and physiology. In Block VI, Neurosciences, neuroanatomy is integrated with neurophysiology, neurochemistry, neurobiology and clinical neurology. In both blocks, lectures are correlated with practical laboratory assignments. In this way, the student is provided with a comprehensive treatment of the subject matter and has ample opportunity to learn its important clinical implications and research applications.

GRADUATE AND POSTDOCTORAL PROGRAMS

Graduate students are encouraged to investigate critical biological questions by applying a broad range of experimental approaches. Graduate programs lead to the PhD or MD/PhD degrees. The program of study is uniquely tailored to individual student needs to establish a foundation in molecular and cellular biology with a minimum of required coursework. In addition, courses in principles of neuroscience, developmental neurobiology, modern neuroanatomical methods, the structure-function of membranes, ion channels, synaptic transmission, imaging, and reproductive physiology and endocrinology are available as well as journal clubs in neuroscience, chemosensory

neurobiology, membrane biology and reproductive biology. New courses in the analysis of neural networks and innovative mini-courses that focus on scientific writing and preparation of grant applications to further prepare students to become competitive scientists are planned.

The department also has an NIH-funded postdoctoral training grant and attracts a high number of outstanding postdoctoral fellows.

Anesthesiology

Martin Helrich Professor and Chair

M. Jane Matjasko, MD

The Department of Anesthesiology provides a required rotation for students during their junior year (GSUR 531-01). This weeklong rotation includes clinical experience in the operating room as well as didactic experience. Students receive instruction in basic airway, pharmacology and anesthetic techniques. A sub-internship rotation in the surgical intensive care unit and several month-long similar electives are offered by the department. A brief description of each course follows:

SUB-INTERNSHIP (548-01)

The goal of this course is to provide the student with clinical experience in the evaluation and management of critically ill patients, primarily, but not exclusively, surgical patients. The student spends the majority of the time during this rotation working in the surgical intensive unit (SICU). The student will participate in daily work and teaching rounds and have responsibility for the care of assigned patients under the direction of the SICU physician team. Students admit patients to the unit, perform history, physical and laboratory assessments, present patients on rounds and provide ongoing care.

ANESTHESIOLOGY (ANES 541-01)

A month elective in anesthesiology providing active “hands-on” clinical participation to provide broad insight into the practice of anesthesiology. Students learn how this specialty functions in preoperative evaluation, intraoperative management and post anesthesia care as well as consultation services in pain management. Application of the basic sciences during anesthesia is also presented.

NEURO/RESEARCH ELECTIVE (ANES 589-01)

A one month clinical elective in neurosurgical anesthesia. The student will spend time in the operating room with senior faculty and senior residents in caring for seriously ill neurosurgical patients. Emphasis will be placed on pre-operative evaluation, intra-operative monitoring and post-operative care. The student may participate in ongoing clinical or basic science research under faculty supervision.

PAIN MANAGEMENT CENTER (ANES 542-01)

This elective offers students broad exposure to strategies and techniques employed in pain management. At the University of Maryland Pain Management Center, students will participate in the evaluation and management of patients with chronic pain syndromes. Alternative therapies (acupuncture and hypnosis) are often incorporated. Students also participate in daily morning rounds on the Acute Pain Management Service. This consult assists in the management of hospitalized patients with particularly challenging post-operative use of opioids in pain management.

GRADUATE PROGRAM

The program has a continuing commitment to the development of astute clinicians, avid researchers, excellent graduate and undergraduate educators, and quality, compassionate patient care. The department administers over 20,000 anesthetics per year.

The residency is accredited for the training continuum of three years. The diverse curriculum permits candidates to fulfill the educational requirements for entrance to the American Board of Anesthesiology examination system. Appointments are made at the CA-1/PGY-2 level. The Clinical Base Year (CB/PGY-1) is arranged by the candidate.

Residency training consists of supervised daily instruction in the care of patients requiring surgery, obstetric care, pain management, critical care services, and preadmission evaluation. Experience is provided in postoperative care, resuscitation, respiratory and circulatory emergency care, and ventilator management.

POSTGRADUATE FELLOWSHIP

Individuals may choose to complete subspecialty fellowship training (12 to 24 months) beyond the three clinical anesthesia years. There are accredited fellowships in critical care medicine and pain management, as well as advanced subspecialty fellowship training in pediatric anesthesiology, cardiothoracic, neurosurgical, obstetrics, trauma, and research.

A fully accredited one-year fellowship program is available in anesthesiology critical care. The curriculum includes nine months of critical care experience in the intensive care units at the University of Maryland Medical Center and Shock Trauma Center, one month of echocardiography, and two months of an elective.

Biochemistry and Molecular Biology

Professor and Chair

Giuseppe Inesi, MD, PhD

Biochemistry, including molecular biology and gene expression, seeks to understand the phenomena of biology in terms of molecular structure and interaction. It permeates all of modern biology and medicine and is a fundamental prerequisite to other medical sciences, particularly pharmacology, microbiology, cell biology, pathology and the clinical sciences.

The teaching goal of the department is to present a concise but comprehensive lecture-conference course including as major subjects: proteins, enzymes, nucleic acids, intermediary metabolism, energy production and utilization, chemical aspects of hormones, protein and nucleic acid biosynthesis, with general reference to cell and molecular biology and genetics.

The Department of Biochemistry and Molecular Biology faculty is involved in teaching the first-year blocks; Block IV-Cell and Molecular Biology, Block V-Neurosciences and Block VI-Functional Systems.

UNDERGRADUATE MEDICAL PROGRAM

Cell and molecular biology courses are concentrated in a ten-week period in late fall of the freshman year. Activities include plenary lectures, small group conferences with problem-based learning, independent studies and a series of correlative medicine sessions to demonstrate the application of biochemistry to the understanding of human disorders.

GRADUATE PROGRAMS

The Department of Biochemistry and Molecular Biology also offers PhD programs, and a MD/PhD program. Classroom teaching for graduate students includes courses in introductory biochemistry and molecular biology, proteins and enzymes, biochemistry seminar, muscle:

contractility and excitation-contracting coupling and advanced molecular biology. In addition, several professors are available as advisors for fulfillment of experimental theses in funded research laboratories.

Students interested in biochemistry and cell and molecular biology are encouraged to contact individual faculty members about opportunities for part-time or summer research. Limited funds have been made available to support part-time research assistants.

FACULTY RESEARCH INTERESTS

Research interests within the Department of Biochemistry and Molecular Biology are numerous and include studies in membrane transport and membrane biochemistry, eukaryotic and prokaryotic molecular biology, virus assembly, enzymology, fluorescence and NMR spectroscopy, Ca²⁺ regulation mechanisms, receptor mechanisms, hemoglobin biochemistry, as well as many others. In addition to the individual research programs of the faculty, the department is widely recognized for its Center of Fluorescence Spectroscopy, under the direction of Dr. Lakowicz; the NIH Program Project on regulation of Ca²⁺ in muscle, under the direction of Dr. Inesi; and the NIH Program Project on Hemoglobin Substituents, directed by Dr. Bucci.

Dermatology

Professor and Acting Chair

Joseph W. Burnett, MD

Dermatology faculty teach in the first-year Structure and Development block and in the second-year Immunology, Host Defenses and Pathophysiology and Therapeutics blocks. During the ambulatory block of the third year medicine students rotation, all students attend eight half-day sessions in the clinic.

DERM 541. Dermatology Elective. Dermatology may be taken as an elective during the fourth year. Students work together with the dermatology residents and attending physicians in the diagnosis and treatment of a large number of patients with cutaneous disorders. Emphasis is placed on developing proficiency in dermatologic examination and description. Students actively participate in grand rounds, daily seminars and the weekly journal club. They also attend the clinical sessions of the Maryland Dermatological Society. A brief oral presentation and short final examination are required.

GRADUATE PROGRAM

The University of Maryland has a three-year residency program in dermatology which stresses both the clinical and research aspects of this specialty. One year of internship in a primary care field is required. The usual conferences in a dermatology program, such as pathology, mycology, immunology and allergy, basic sciences, journal club, radiation therapy, pharmacology and clinical textbook review, are included in the program.

DERMATOLOGY RESIDENCY PROGRAM

The University of Maryland has a three-year accredited program in Dermatology, which stresses both the clinical and research aspects of the specialty. Each house officer will be assigned his/her own patients during this time, and will average at least 15 patients individually per day. We have the largest clinic in the area and have affiliations with the adjacent Veteran's Administration Medical Center. Our program offers a cooperative attending staff, a large number of patient encounters, excellent facilities, and a clinic experience where you see your own follow-up patients

over an extended time. A good dermatologist requires knowledge of the progress of the therapy of chronic disorders. This knowledge can only be obtained by following patients for months to years. There are one or two residency positions available each year.

CONFERENCES

The didactic training sessions are conducted by the faculty, selected by the residents and regulated by the resident staff. Conferences, including pathology (unknowns and test review), immunology and allergy, basic sciences, mycology, journal club, pharmacology unknown kodachromes and clinical text reviews are included in our program.

CLINICAL DERMATOLOGY

The clinics at the University of Maryland Medical Center and the Baltimore Veterans Affairs Medical Center meet in the mornings and afternoons respectively. All of the patients are under residents' care with monitoring by chief residents and/or attending staff. The fact that residents attend these clinics daily and have primary responsibility for the patients over the course of three years is unique in American dermatological training programs. Every afternoon, one resident serves as in-hospital consultant. Every morning, one resident runs a busy phototherapy unit at the VA. Surgical clinic meets weekly.

RESEARCH

Research experience is available at the University of Maryland dermatology service. Residents are required to participate in a project during their residency years. Adequate funds for supplies and technical help are in place. Any research proposal requiring the guidance of faculty in another department can be pursued in the laboratories of those departments within the medical complex.

SURGERY

The dermatological surgery experience is excellent. "Hands on" procedural instruction is routine. The Department of Dermatology has a full-time Mohs' surgeon and an excellent surgical conference schedule.

ELECTIVES

Elective time to pursue students' own interests with dermatology or other related fields has been made available for senior residents. This has been usually taken during the winter months, in such fields as pathology, immunofluorescence diagnoses, phototherapy or dermatological surgery.

STUDENT ELECTIVES/FELLOWSHIPS

We do not offer surgical or other types of fellowships. While we do not offer research positions or research electives, we do offer a clinical elective for 4th year students who have completed their internal medicine rotation. The elective is very popular, and priority is given to University of Maryland students. Interested students from other institutions should apply to the University of Maryland Office of Student Affairs with several months notice.

APPLICATION PROCESS

Applications will be accepted THROUGH ERAS ONLY. The deadline for completed applications is December 1 of each year. Interviews are held in January by invitation only. We participate in the NRMP match. We will accept applications from individuals who have completed more than one postgraduate training year. Please address questions to the residency coordinator at (410) 328-5766.

Professor and Chair

Philip A. Templeton, MD

Since German physicist Wilhelm Conrad Roentgen discovered the x-ray in 1895, radiology has become an integral part of our healthcare delivery system. With advances in technology, radiologic studies now establish or verify the diagnosis in three out of four cases of organic disease. The development and integration of nuclear medicine, ultrasonography, computed tomography and magnetic resonance imaging (MRI), has provided diagnostic imaging with an even more central role in diagnosis and selected (interventional) therapeutic procedures. The radiology department at the University of Maryland has state-of-the-art facilities and cutting-edge technologies, making it one of the most sophisticated in the world.

RESEARCH INTERESTS

Clinical research is the main focus of departmental research activity. Multiple divisions within the department are pursuing a wide variety of research in state-of-the-art technologies such as spiral CT, MR imaging, SPECT and PET imaging, teleradiology, and picture-archiving and communications system (PACS). The department was among the first in the nation to obtain CT fluoroscopy and portable CT. Specific projects include the evaluation of interventional and non-interventional applications of CT fluoroscopy, assessment of MR pulse sequences to improve diagnosis, use of spiral CT to decrease the intravenous contrast dose, and a comparison of the quality of conventional and PACS images. A complete computed radiography and PACS system is installed in University of Maryland Medical Center and the Baltimore VA Medical Center.

The department is organized into the subspecialty sections of abdominal imaging, angiography/interventional radiology, breast imaging, chest radiology, musculoskeletal radiology, neuroradiology, nuclear medicine, pediatric radiology, trauma radiology and ultrasonography. The subspecialty organization and multiple interdepartmental conferences facilitate collaboration with diverse clinical specialties. Current projects include cooperative studies with physicians in the Greenebaum Cancer Center, MR evaluation of renal-pancreas transplants, CT assessment of patients undergoing lung volume reduction surgery, and preoperative local staging of breast cancer with MRI and ultrasound. Other projects are underway in cooperation with MIEMSS physicians, evaluating the usefulness of CT and MRI in the diagnosis of multiple visceral and skeletal trauma, particularly involving the pelvis and acetabuli. Multiple cooperative cardiovascular nuclear medicine studies are progressing with the Department of Medicine's Division of Cardiology. In addition, a national training program for mammographers in practice is being developed.

UNDERGRADUATE MEDICAL PROGRAM

The Department of Diagnostic Radiology offers the medical student an opportunity to acquire a broad base of knowledge related to imaging in almost all aspects of medicine. Formal instruction begins during anatomy in the first year and pathology in the second year. During the third or fourth year, students may elect to take the basic radiology course (RADI 540). The curriculum is supplemented with small group case discussions with the faculty and contact through interdepartmental rounds and conferences involving radiology during clinical rotations.

THIRD OR FOURTH YEARS BASIC RADIOLOGY ELECTIVE, RADI 540

Small groups of students are assigned for a period of four weeks to the radiology department. Groups are subdivided to allow individual instruction as the student rotates through a series of observation periods in selected subspecialties within the department. Students also receive an

introduction to the Department of Radiation Oncology. Reading assignments, slide-tape exercises, a student teaching file and seminars form the core of the learning experience. Students attend departmental conferences and joint conferences with other departments.

THIRD AND FOURTH YEARS SUBSPECIALTY RADIOLOGY ELECTIVE

Students learn more about appropriate use of diagnostic imaging and interpreting images. The curriculum is flexible, tailored to the needs of the student's career choice. Students are expected to investigate a small aspect of imaging within their area of interest and make a short presentation to the faculty and residents. This presentation and overall performance, as evaluated by the curriculum supervisor, serve as the evaluation criteria for this elective. Students are given the opportunity (in all sections) to perform clinical and/or lab research, correlate imaging evaluations, do statistical analysis, run literature reviews, etc.

GRADUATE PROGRAM

A four-year residency is offered in diagnostic radiology at the University of Maryland Medical System. Fellowships are offered in computed body tomography/ultrasonography/MRI, interventional and vascular radiology, neuroradiology, critical care trauma, musculoskeletal radiology, women's imaging, nuclear medicine and chest radiology.

Epidemiology and Preventive Medicine

Professor and Chair

J. Glenn Morris, Jr., MD, MPH & TM

Modern epidemiology is a biomedical discipline at the interface of clinical practice and basic medical science. Preparation for the practice of medicine requires knowledge not only of clinical medicine and basic medical science, but also epidemiology, research methods, biostatistics and social science.

The department is engaged in teaching, research and service across the spectrum of public health and preventive medicine. The faculty has expertise in clinical epidemiology, biostatistics, environmental and occupational medicine, clinical preventive medicine, health services research, aging, behavioral sciences, international health, women's health and clinical research methods. Departmental courses, seminars, journal club, clinical assignments and supervised research experiences are offered to enhance the physician's capabilities in these areas of increasing importance to clinical medicine. Interdisciplinary relationships have been formed with other departments and clinics within the University of Maryland Medical Center and throughout the region.

The department introduces principles of epidemiology and biostatistics, clinical research methods, occupational and environmental medicine and, organization of the health care system in the second year, and shows their application to clinical medicine in the third and fourth years of the medical school curriculum.

MD/PhD students can elect to pursue their PhD degree in epidemiology. Another option for medical students interested in epidemiology and preventive medicine is a combined MD/MS degree.

The department sponsors an ACGME approved two-year residency program leading to board certification in preventive medicine. The program prepares physicians for positions in federal health agencies, state health departments, hospitals, medical schools, public health institutes and industry, as well as for the practice of clinical preventive medicine.

Many of the graduate courses, tutorials and research experiences are available to medical students during their elective periods. Students are welcome at departmental seminars listed in the academic calendar and at the journal club which is scheduled each week throughout the academic year.

Community service activities of the department are carried out in health planning, research and evaluation through active collaboration with hospital clinics, health departments, governmental agencies and voluntary organizations concerned with public health problems.

RESEARCH INTERESTS

Department research activities cover a broad range of faculty interests. Clinical and community intervention studies are directed toward the causes and prevention of major chronic diseases. Environmental and genetic risk factors associated with disability are an area of active research. Research on hip replacement outcomes, as well as treatment of Lyme disease, exemplifies increased attention to the study of medical care effectiveness and outcomes. Behavioral change research, particularly smoking cessation and diet modification, focuses on establishing and maintaining a healthy life style. The department's program of international health has a research project on viral hepatitis in Egypt and investigates the prevention and control of infectious and tropical diseases in other parts of the world. Women's health throughout the life cycle has become a recent research concentration; musculoskeletal and reproductive health are of particular interest.

UNDERGRADUATE MEDICAL PROGRAM

Second Year

Biostatistical and epidemiological methods, principles of occupational and environmental medicine and organization of the health care system are integrated into the blocks of systems-oriented instruction in the second year. The emphasis is on providing practitioners with the tools necessary to evaluate the scientific medical literature critically regarding issues such as disease etiology and diagnostic testing, as well as preventive and therapeutic interventions. These concepts are introduced in lectures and applied in exercises in small-group sessions. The exercises complement systems-related material introduced by other disciplines and relate to research papers which address clinically relevant issues.

Clinical Years

The applications of preventive medicine to clinical practice are presented in the junior-year ambulatory and clinical preventive medicine combined rotation. Emphasis is placed on the important role of the physician in health promotion and disease prevention. Sessions focus on risk factors for the leading causes of death and disability in the United States and on important issues in health care policy affecting physicians and their patients. Students also present patient management cases. In the senior year, each student conducts research at an assigned clinical site during the ambulatory care rotation.

Electives

Elective opportunities are available for medical students, including tutorials with selected faculty members, supervised research experiences and field experience. Among current offerings are the following:

PREV 541. Introduction to Public Health Practice

PREV 542. Tropical Medicine and International Health

PREV 543. Clinical Practice in Occupational Health

PREV 544. Occupational Health Hazard Investigation Field Experience

PREV 545. Health Problems in Developing Countries

PREV 546. Occupational Respiratory Healthy Hazard Investigational Field Experience

PREV 547. Migrant Health Field Experience

PREV 550. Practical Experience in State-wide Surveillance of Lyme Disease and Ehrlichiosis

PREV 551. Research in Occupational Health

PREV 589/599. Research in Epidemiology and Preventive Medicine

SUMMER FELLOWSHIPS

Summer fellowships in preventive medicine are available to a limited number of students. Each student works closely with a faculty member and undertakes a research project in some aspect of preventive medicine or epidemiology. Students also participate in departmental seminars, journal club and workshops that enhance interaction with faculty members, residents and other students. Elective credit may be given upon completion of project requirements.

GRADUATE AND POSTGRADUATE STUDIES

The department's graduate program consists of a PhD in epidemiology and an MS in epidemiology and preventive medicine, as well as the MD/PhD and MD/MS combined degrees available to medical students. Work toward the PhD in the combined MD/PhD degree program will normally occupy at least three years between the second and third years of medical school. Contact the MD/PhD program office [(410) 706-3990] for information about stipends. The combined MD/MS degree may require one year in addition to the usual four-year medical school curriculum which also satisfies one year of the requirements for board certification in preventive medicine.

The department has a postgraduate two-year residency program in preventive medicine leading to eligibility for certification by the American Board of Preventive Medicine. The residency provides a variety of individually planned opportunities for advanced study and practice in epidemiology, biostatistics, computer science, health care administration, gerontology and occupational health. Components of the residency program include required and elective graduate-level courses, a variety of seminars, journal club and workshops, supervised research experiences and field placements in public health or research settings. Course work leads to a Master of Science degree in epidemiology and preventive medicine.

In cooperation with the Departments of Medicine, Pediatrics, Family Medicine and other clinical departments, combined residency programs may be arranged for qualified applicants leading to board-eligibility in both preventive medicine and a clinical specialty.

Family Medicine

Professor and Chair

Herbert L. Muncie Jr., MD

The Department of Family Medicine educates family physicians to render high-quality medical care to individual patients and families of all ages in a continuous and comprehensive manner. Family physicians are responsible for patient care at the point of entry into the health care system; providers or coordinators of health care at the secondary and long-term care phases of illness; and coordinators of tertiary care.

The department offers educational experiences in family medicine for students at the University Family Medicine office, on the Family Practice Inpatient Service, and through an interdisciplinary, longitudinal educational program that is guided by a staff of experienced family physicians. Moreover, students may participate in community health services, supervised practice experiences and health care research.

Within the discipline of family medicine, several areas are emphasized. The department provides regular house calls for 50 frail, homebound elderly in the city. The department has a division of behavioral medicine that further integrates the teaching of basic science, clinical medicine and the psychosocial aspects of health care. The division assists in the education of substance abuse, training issues related to family violence and abuse, and common mental health conditions seen in family medicine, such as anxiety and depression.

The department has a Program in Complementary Medicine as part of the Lang Complementary Medicine Project. This is a research oriented project that examines the effectiveness of acupuncture, homeopathy and other complementary medicine techniques in medical care with an additional component of education and clinical care. The program has a full-time faculty acupuncturist and conducts an annual seminar series on complementary medicine.

The department has developed an active sports medicine division. Family medicine physicians participate in the care of the Baltimore Ravens, University of Maryland Terrapins and the Coppin State athletes. A fellowship in primary care sports medicine is available.

The department has a major focus on providing health care to underserved patients and communities, involving community outreach and disease prevention.

RESEARCH INTERESTS

The research efforts of the Department of Family Medicine reflect the broad interests of the department's faculty. Current projects, which are clinically oriented and relate to current medical problems, range from epidemiologic studies to evaluations of specific therapies. The department has a strong interest in health promotion and nutrition, especially as they relate to the family and the elderly. The department concentrates on investigating ways to improve community health. Collaborative efforts with other departments involve investigations into health promotion, screening for HPV infections and the management of the abnormal PAP smear. During their last year of training, all family medicine residents are required to complete a research project and to present their results at the Annual Family Medicine Residents' Research Day. The department faculty, fellows and residents present their research at national meetings, and in journals, books and other publications.

UNDERGRADUATE MEDICAL PROGRAM

Minimester Electives. During the summer months, students may elect to spend time in the office of a selected family physician in order to observe the varied professional activities of a physician practicing in the community. During preceptorship experiences, students may participate in direct patient care or primary health care research.

Family Care Track Program. The Family Care Track (FCT) is an elective undergraduate experience designed to teach medical students the principles of family medicine with a focus on the urban, poor, multi-problem family. It provides a continuous clinical experience through all four undergraduate years. Students are assigned to follow families over the first two years in the department's Family Practice Centers. The families are selected to provide exposure to obstetric, pediatric and geriatric care, and to family dysfunction. Supervision is provided to the individual student and through the use of small group integration seminars for case discussion. The students also are required to complete a community medicine seminar series, a social services preceptorship, a needs assessment, a community project and a four-week clinical preceptorship in sites, including some located in health-professional shortage areas.

Up to 40 students are selected each year from the freshman Longitudinal Elective in Family Medicine to participate in the FCT program. Credits for this elective include four weeks of senior elective credit at the completion of the program.

Longitudinal Ambulatory. The longitudinal ambulatory clerkship is designed to: 1) give students a longitudinal experience in primary care, 2) help the student integrate the management of patient problems through the continuum of initial presentation, outpatient and inpatient clinical medicine, and 3) allow the student to have an extended interaction with a primary care physician for role modeling purposes. Students spend one afternoon every other week with a primary care physician (pediatrician, family practitioner or general internist) during their junior year of medical school.

Third-Year Family Medicine Clerkship. The family medicine clerkship focuses on the guiding principles of family medicine: continuity and coordination of care, comprehensiveness, community, prevention, and family. Students spend four weeks in a family medicine practice in either an urban or suburban locale. Each Friday during the clerkship students meet at the Department of Family Medicine for a series of lectures on the family life cycle and to research, evaluate, and present case studies/patients.

Senior Elective in Family Practice. In this elective, students work with a community family physician preceptor. They have the opportunity, under supervision, to manage problems typical of a busy practice, ranging from obstetrics to geriatrics. There is ample opportunity to be involved in coordinating continuous care of patients over a four-to six-week period. Students begin to understand the patient in relation to family, job and environment. Furthermore, the student observes the role of the physician in society, the social and civic obligations and responsibilities to the patient. Site options range from urban health manpower shortage sites to rural private practice. In these varied settings, students are expected to conduct a limited clinical investigation, using data collected in the practice, and to attend weekly Alcoholics Anonymous or Al-Anon meetings in the community.

Senior Sub-Internship in Family Practice. The Department of Family Medicine offers an eight-week internship to senior students. This is an extensive inpatient experience utilizing the family medicine inpatient service. Variety is a major attraction as the patients' needs range from newborn care and obstetrics to adult general medical and geriatric care. The student is exposed to the family practice approach to inpatient care with an emphasis on interdisciplinary, comprehensive and continuous care and participates in night and weekend call. Students may choose to accomplish the rotation at University of Maryland Medical Center or Union Memorial Hospital. The rotation at Union Memorial is primarily an internal medicine experience.

Senior Ambulatory Clerkship in Family Practice. Students may select University Family Practice as an option in the required Senior Ambulatory Course. This eight-week rotation exposes students to the clinical practice of the Department of Family Medicine residency program. In this

setting, students are scheduled to see patients daily in the University Family Practice Center, work with a variety of preceptors from the Department of Family Medicine and participate in didactic sessions. This ambulatory experience is designed to expose students to the principles and practice of family medicine.

GRADUATE MEDICAL PROGRAM

The University of Maryland's approved three-year residency in family practice is one of the oldest in the nation. Approximately 30 residents are enrolled in a three-year program. The program's goal is to provide comprehensive training in the specialty, utilizing the latest information and educational methods. Resident training takes place both at University of Maryland Medical Center, where the expertise of faculty in all specialties can be utilized, and in several community hospitals where the residents are exposed to a wide variety of patient problems. Flexibility is maintained through the availability of electives in order to accommodate specific needs of the trainee. Although the majority of graduates are actively engaged in family practice in rural, suburban and urban areas, a significant number are pursuing academic careers.

Medical and Research Technology

Professor and Chair

Denise M. Harmening, Ph.D.

The department currently offers a Bachelor's of Science degree with a concentration in either Medical Technology (Clinical Laboratory Science) or Biomedical Science Research (Biotechnology). These programs combine the strengths of a major research university with the benefits of small classes and a high faculty-to-student ratio. As a component of a large academic health center, the Department of Medical and Research Technology affords students unusual opportunities to participate in a stimulating educational environment while gaining practical experience in clinical laboratory science and biotechnology through clinical rotations and externships in industry.

Medical technology (clinical laboratory science) provides information crucial to the diagnosis and prevention of disease, the management of patient therapy and maintenance of health. Medical technologists are involved in performing laboratory procedures ranging from identification of microorganisms to analysis of body fluids, and providing blood for emergency transfusion. Biomedical science focuses upon the discovery, development and production of diagnostic products and biopharmaceuticals. The biotechnologist uses skills in molecular and cellular biology, immunology, protein chemistry and microbial fermentation to produce reagents and products used in industry, medicine, and in basic and applied research.

Students transfer into the program in their junior year following the completion of 60 credit hours of prerequisite coursework at a regionally accredited community college or university of their choice. Those attending two-year institutions may transfer directly to the Department of Medical and Research Technology. Most students complete the professional curriculum in two years; however, a three-year, part-time option is available for non-traditional students. To promote the departmental philosophy of life-long learning, all students participate in a formalized student professional development program.

Students completing the medical technology program are eligible for certification from national agencies such as the American Society for Clinical Pathologists, MT(ASCP) and the National Certifying Agency, CLS(NCA). The medical technology concentration of study fulfills requirements set forth by the National Accrediting Agency for Clinical Laboratory Sciences, and the department has received a full seven-year accreditation. Students completing the Biomedical Science Research Track are eligible for certification from the National Accrediting Agency as a specialist in Molecular Biology [CLSp(MB)].

The department has successfully developed a minority outreach program that has contributed to one of the highest percentages of minority enrollment in a science-based curriculum at a majority institution. In addition, a post-baccalaureate certificate program is offered during the day for those individuals who have a bachelor's degree and seek certification in one of the specialty areas of the clinical laboratory, such as chemistry, hematology, microbiology, and immunohematology.

GRADUATE EDUCATION

The department also offers a Master of Science degree in Medical and Research Technology in which students may enroll in either the biomedical science research track or the laboratory management track. The graduate program is designed to provide advanced technological, managerial, and research skills to students with a BS degree in clinical laboratory science, biomedical science research, or other science-related fields. Laboratory management track students must complete a Laboratory Management Practicum that includes submission of a management dossier containing a professional paper written by the student. One-year of professional work experience is required for acceptance into the laboratory management track. Students in the biomedical science research track must complete a thesis.

CLINICAL AFFILIATIONS

During the final component of the program, students in the medical technology track complete clinical practice courses in four specialty areas: hematology, blood banking, microbiology, and clinical chemistry. The department is affiliated with clinical facilities in the Baltimore-Washington area. Clinical facilities include university-based and community hospitals, as well as independent laboratories, located throughout the Mid-Atlantic region.

RESEARCH AFFILIATIONS

The biomedical science research concentration requires students to complete five months of externships which may be undertaken in an academic research laboratory or in industry. Externship sites are located predominantly in the Rockville/Gaithersburg research corridor.

The number and variety of clinical and research sites are assets that set apart from others the University of Maryland School of Medicine's medical technology and biomedical science research programs, and allow students to experience several different work settings.

For additional information contact:

Academic Coordinator
Department of Medical and Research Technology
University of Maryland School of Medicine
Allied Health Building, Room 440-B
100 Penn Street
Baltimore, Maryland 21201
(410) 706-7664

Theodore E. Woodward Professor and Chair

William L. Henrich, MD

The Department of Medicine, or internal medicine as it is called in some schools, teaches the body of medical knowledge that enables one to diagnose and treat the illnesses of adults primarily with medicines rather than with operations.

The practitioner of internal medicine is usually called an internist, but he or she may be referred to by the title physician, in the specialized use of the word, which can also be applied to any medical doctor. An internist may be a cardiologist, an endocrinologist, a gastroenterologist, a rheumatologist or a practitioner in one of the dozen or so specialties of internal medicine. But the internist always remains the physician (or the diagnostician as internists were called in former times) whose special competence is solving difficult diagnostic problems and personally applying or obtaining from a colleague the best treatment available.

The term internal medicine, which derives from the German *Innere Medizin*, was first used during the nineteenth century when many American physicians traveled to Germany and Austria for training in what were then the leading clinics and medical laboratories. According to one medical historian, "Within a decade or so after 1880, internal medicine was differentiated from ordinary clinical medicine, the simple natural history of disease, by emphasizing that it was based on experimental work in physiology and physiochemistry." Internists have always required special training to acquire their knowledge and skills and have continuously shown a particular interest in the scientific basis of clinical work.

Educating medical practitioners for the state and the nation is the principal training responsibility of the faculty of the Department of Medicine, but they also seek to develop in some students a desire to make useful discoveries through basic or applied research. Fundamental advances in the causes and treatment of disease have often been made by internists, for example, the work on cholesterol metabolism which in 1985 brought the Nobel Prize in Medicine and Physiology to two internists, one a gastroenterologist and the other a geneticist. In keeping with this traditional devotion to the value of research, the Department of Medicine provides many opportunities for students to participate in research and strongly encourages all who may have an interest to experience laboratory work with investigators.

UNDERGRADUATE COURSES

First and Second Years

The Department of Medicine faculty teach in the first-year Neurosciences and Functional Systems blocks, and in the second-year Pathophysiology and Therapeutics, and Immunology, Host Defenses, Infectious Disease, Epidemiology and Preventive Medicine blocks.

Second Year

PDIA 520. History and Physical Examination. Eliciting an accurate story of the patient's complaints (the history) and detecting abnormal findings by physical examination constitute the fundamental skills of every physician. To acquire these abilities, students attend introductory lectures from members of the faculty; afterwards, groups of two students meet weekly with instructors in one of the University of Maryland's teaching hospitals. The students interview and examine patients with a wide variety of illnesses and then discuss the findings with their teacher who correlates the observations with pathophysiological abnormalities being studied in basic science courses. The course also includes small group sessions with instructors from neurology, pediatrics and psychiatry. This will be incorporated into the Introduction to Clinical Practice block given longitudinally in the sophomore year.

Third Year

MEDC 530. Clinical Clerkship. This is the fundamental course in internal medicine for medical students. The clerkship lasts 12 weeks with eight weeks of inpatient internal medicine and four weeks of ambulatory internal medicine. For eight weeks, the students work with the medical teams caring for inpatients at two of the department's three primary teaching hospitals: University of Maryland Medical Center and the Baltimore Veterans Affairs and Mercy Medical Centers. Students join the interns, residents, and nurses for work rounds at 7:00 a.m. and participate in daily rounds with their attending physician from the faculty at 9:00 a.m. Conferences are held daily; some are case-based sessions facilitated by members of the faculty and are designed to teach problem solving ability. During other sessions, students join the residents and faculty at medical grand rounds, morbidity and mortality, and ambulatory conference. During the afternoons and evenings, clerks participate in the team's care of patients. Time is spent obtaining histories, performing physical examinations, obtaining and evaluating other aspects of the patient's database, and developing diagnosis and treatment programs with the residents and faculty. During the four weeks of ambulatory medicine, students are assigned to one of several university-based or community sites. The goal of this rotation is to introduce students to the basic concepts of ambulatory medicine. These include problem focused assessments, decisions about urgency and principles of access and continuity of care. Students may spend time in acute walk-in clinics, general medicine and primary care clinics, as well as selected subspecialty clinics.

Fourth Year

MEDC 548. Student Internship (Subinternship in Medicine). The student internship in internal medicine occupies four weeks, all of which must be spent on the general medical services at the University of Maryland Medical Center, Baltimore Veterans Affairs or Mercy Medical Centers. Student interns work as if they were graduate physicians but under the close supervision of the resident and attending physician. Subinterns are on-call in the hospital with their resident physicians one out of four nights. The amount of responsibility delegated to subinterns depends upon the extent of each student's knowledge, dedication and maturity. Successful completion of a subinternship in medicine prepares students particularly well for graduate internships.

Laboratory and Clinical Research Electives. The faculty of the Department of Medicine strongly encourages all students to join them on a full-time or part-time basis to participate in research projects being conducted in the department. This experience may be scheduled at most times of the year. Students with an interest in investigation should talk with members of the faculty or the chair about the many opportunities available in the Department of Medicine.

GRADUATE PROGRAM

Residency Training. Training in internal medicine continues after graduation from medical school in the department's residency program. Approximately 35-40 graduates from leading medical schools are appointed to first year residency positions on a competitive basis. Residents receive their training at University of Maryland Medical Center and the Baltimore Veterans Affairs and Mercy Medical Centers in addition to numerous ambulatory sites. Most first year residents continue their training in internal medicine for an additional two years, thus becoming eligible for certification as diplomats of the American Board of Internal Medicine. A four-year medicine-pediatrics track is available to individuals interested in certification in both specialties. Also, five-year tracks in medicine-emergency medicine and medicine-neurology are available. All residents receive intense clinical training in primary care and the medical subspecialties in a variety of ambulatory and inpatient settings under close guidance of the department's faculty. While completing the broad core curriculum, residents have the opportunity to explore clinical and basic science research areas or engage in individualized electives. Residents are expected to develop their leadership, teaching and professional skills while gaining expertise in the vast expanse of internal medicine.

Division of Cardiology

Professor and Head

C. William Balke, M.D.

UNDERGRADUATE COURSES

First and Second Years

Selective lectures are given on cardiology topics as part of the Cell and Molecular Biology, Functional Systems and Pathophysiology and Therapeutics courses. Cardiac physical diagnosis is taught in lecture and in small groups incorporating normal subjects and patients with abnormal findings.

Fourth Year

CARD 541-01. Clinical Cardiology Elective. Students are given the opportunity to actively participate in patient evaluation and management recommendations on the consultative services at either University of Maryland Medical Center or the Baltimore Veterans Affairs Medical Center, working closely with a cardiology fellow and attending cardiologist. Skills in electrocardiographic interpretation are taught at sessions three times a week specifically directed to senior medical students. The rotation includes the opportunity for the student to observe both invasive and non-invasive cardiology techniques.

Numerous conferences are held weekly within the cardiology division and student attendance is encouraged. Specific conferences of interest to the students include EKG interpretation, echocardiographic interpretation, clinical cardiology and cardiology grand rounds.

POST GRADUATE PROGRAM

The Division of Cardiology offers a three year clinical fellowship with additional training available in interventional cardiology and electrophysiology. Clinical fellows develop skills in echocardiography, electrocardiography, exercise testing, nuclear cardiology and diagnostic catheterization. Patient management and consultations skills are emphasized. Fellows are encouraged to participate in clinical and basic science research projects.

Division of Endocrinology, Diabetes and Nutrition

Professor and Head

Alan R. Shuldiner, MD

UNDERGRADUATE COURSES

2nd-4th years

Research fellowships during the summer (8-10 weeks) and part-time and full-time during the school year are offered for students interested in intensive basic and/or clinical research. Students are matched with a faculty member based on their research interests. Ongoing basic research interests of the division's faculty members include molecular genetics of type 2 diabetes, obesity, hypertension, osteoporosis and thyroid disease, molecular mechanisms of insulin resistance, pancreatic beta-cell ontogeny, growth and maintenance, functional genomics of adipose tissue, and structure-function relationships of cysteine knot growth factors including thyroid stimulating hormone. Clinical research interests include genetic control of energy expenditure, glucose metabolism and insulin secretion in humans with type 2 diabetes and obesity, pharmacogenetics, prevention and treatment of macrovascular and microvascular complication of diabetes, growth hormone deficiency in adults, as well as clinical trials of agents to manage diabetes, obesity and their complica-

tions. Students receive didactic teaching in the molecular, cellular and pathophysiological basis of endocrine disorders and diabetes and participate in weekly grand rounds, clinical conferences, research seminars and journal and data presentation sessions.

Second Year

PATH 520. In the second semester an intensive two-week course is given in collaboration with the departments of pathology, pharmacology, pediatrics and ob-gyn. The course emphasizes the pathophysiologic basis for clinical disturbances of endocrine functions.

Fourth Year

ENDO 541. Clinical Endocrinology and Diabetes Elective. Seniors are provided a broad clinical experience through a four-week concentrated period of training devoted to a study of patients with clinical disorders of endocrine function. Students are involved in the day-to-day diagnostic evaluation and management of both hospitalized patients and outpatients, and participate in weekly clinics (general endocrinology, diabetes, thyroid cancer, hypertension, bone) under the direct supervision of staff members. The pathophysiologic basis for diagnostic and management aspects is presented at daily rounds and at weekly in-depth clinical conferences, research seminars, grand rounds and journal club. A separate elective of 8-12 weeks available to interested students who may desire a longer period of training and/or who wish to pursue a clinical or laboratory research project in depth.

Clinical Endocrinology and Diabetes Rotation (Residents)

Full-time or part-time positions are available for selected candidates who have usually completed one or more years of house officer training. The purpose of this rotation is for residents to gain an in-depth understanding of the pathophysiology of endocrine disorders and diabetes, and to gain hands-on experience in diagnosing and treating these disorders. The resident will work closely with the fellow and attending physician, and will consult in both ambulatory and hospital settings to obtain a broad exposure and experience in diagnosis and treatment of endocrinopathies (thyroid, parathyroid, neuroendocrine, adrenal, bone, reproductive, pediatric). Extensive training in the diagnosis and treatment of diabetes and its complications is provided at the University of Maryland Joslin Diabetes Center, including inpatient rotations through the renal and pancreas transplantation services. Didactic sessions include weekly grand rounds, clinical conferences, research seminars, and journal and data presentation sessions. Residents also have the opportunity to become engaged in basic or clinical research.

Postgraduate Fellowships (Clinical Endocrinology and Research)

Full-time positions are available to selected candidates with MD degrees who have usually completed two or more years of house officer training. Broad clinical inpatient and outpatient activities are designed for subspecialty board preparation. Applications and interviews are required. Competitive stipends are offered. Fellows consult in both ambulatory and hospital settings to obtain a broad exposure and experience in diagnosis and treatment of endocrinopathies (thyroid, parathyroid, neuroendocrine, adrenal, bone, reproductive, pediatric endocrine). Extensive training in the diagnosis and treatment of diabetes and its complications is provided at the Joslin Diabetes Center, including inpatient rotations through the renal and pancreas transplantation services. Didactic sessions include weekly grand rounds, clinical conferences, research seminars, and journal and data presentation sessions. The fellowship is a two-year program in which the first year is predominantly clinical and the second year (with an option for a third and fourth year) is predominantly research. All fellows conduct independent clinical or basic research programs with graduated autonomy.

Postgraduate Fellowships (Basic and Clinical Research)

Full-time and part-time research opportunities are available for candidates with MD or PhD degrees in basic and/or clinical research. All fellows conduct independent clinical or basic research programs with graduated autonomy. Interested candidates can apply for these positions by submitting their Curriculum Vitae with a cover letter describing their interests in endocrinology and diabetes research. Competitive stipends are available. Typically postdoctoral fellows devote two to three years to an intensive research experience. Ongoing basic research interests of the division's faculty members include molecular genetics of type 2 diabetes, obesity, hypertension, osteoporosis and thyroid disease, molecular mechanisms of insulin resistance, pancreatic beta-cell ontogeny, growth and maintenance, functional genomics of adipose tissue, and structure-function relationships of cysteine knot growth factors including thyroid stimulating hormone. These research activities are performed in the division's research laboratories located on the 4th floor of Howard Hall. Clinical research interests include genetic control of energy expenditure, glucose metabolism and insulin secretion in humans with type 2 diabetes and obesity, pharmacogenetics, prevention and treatment of macrovascular and microvascular complication of diabetes, as well as clinical trials of agents to manage diabetes, obesity and their complications. This research is performed at the Joslin Diabetes Center, as well as in the Division's Amish Diabetes Research Clinic in Lancaster, Pennsylvania. Didactic sessions include weekly grand rounds, clinical conferences, research seminars, and journal and data presentation sessions. Emphasis is also placed on faculty development including the potential for graduate course work, and formal and informal training in grant and manuscript preparation.

Division of Gastroenterology

Professor and Head

Stephen P. James, MD

UNDERGRADUATE COURSES

Fourth Year

GAST 544-01. Clinical Elective. This is a broad clinical experience in consultations, literature review and conferences on gastrointestinal (GI) and liver problems. Students evaluate consultations with GI fellows and senior staff; plan diagnosis and management; and follow patients through definitive treatment and discharge. The rotation includes attendance at four hours of conference, 10 hours of GI clinical rounds and four hours of clinic experience weekly.

Summers Research Electives. GI, liver and nutrition electives are available and may carry a stipend. Individually arranged.

Division of General Internal Medicine

Associate Professor and Head

Louis J. Domenici, M.D.

The general internist at this institution is an individual who is: 1) skilled in all facets of health care, both acute and chronic, as well as the ambulatory and inpatient level; 2) an educator of peers, students and the public; 3) interested in the impact of health care delivery and its evaluation; 4) an able administrator capable of management decision-making and planning; 5) an active participant in the affairs of the community. In addition, the division of general internal medicine provides education, clinical training and research experience for medical students and graduate trainees to the fellowship level.

The goal of the general internal medicine program is to prepare physicians through inpatient, ambulatory and elective experiences during the students' clinical years and continue with an extensive graduate medical education program. The division's faculty deliver a wide range of primary and consultative health care services for ambulatory and hospitalized patients at university clinical sites, which are also used for student and resident medical training. These clinical sites offer health care to university campus professionals, seniors, veterans and the inner city indigent.

RESEARCH INTERESTS

The broad research interests within the division include healthcare worker occupational health, quality measurements in residents and employees in long term care, utilization of health care by the elderly, evaluation of physician and patient behavior relevant to preventive practices, occupational exposure to heavy metals, chemicals and musculoskeletal hazards, nutrition among hospitalized patients, and areas of primary care services to women.

UNDERGRADUATE COURSES

Selected ambulatory primary care elective experiences are offered as part of the senior ambulatory rotation in internal medicine, and there are clinical and research electives in medical consultation or on specific projects with faculty. These experiences are offered on campus and at affiliated medical institutions.

GRADUATE PROGRAM

The graduate medical education program in internal medicine educates and trains physicians in the principles and practices of general internal medicine. The intent is to prepare clinicians by providing training via a broad internal medicine curriculum. Specialized training experiences are encouraged and are presently available in medical consultation and risk assessment, preventive care, rehabilitation or occupational medicine, as well as health services research. Students and residents are supervised by a team of clinician educators, practitioners and scientists in the program. The faculty include general internists, geriatricians, psychiatrists, epidemiologists, clinical pharmacists, primary care nurse clinicians and social workers.

Division of Geographic Medicine

Professor and Head

Myron M. Levine, MD, DTPH

GRADUATE PROGRAM

Postgraduate fellowships in geographic medicine are offered in conjunction with the division of infectious diseases. Fellows spend their first year doing clinical rotations on the infectious diseases consultation services at the University of Maryland Medical Center, the Baltimore Veterans Affairs Medical Center, the Maryland Institute for Emergency Medical Services Systems, and the University of Maryland Greenebaum Cancer Center. The second year is spent in clinical or laboratory research under the supervision of faculty members.

Research may be conducted in the laboratories of the division in Baltimore or in one of the division's field areas in Chile or Africa. The division is closely tied to the University of Maryland Center for Vaccine Development. Laboratories are fully equipped for work in molecular genetics, immunology, antigen purification, routine and enteric microbiology, parasitology (including animal studies) and antimicrobial sensitivity testing. Faculty research interests include the pathogenesis and epidemiology of enteric organisms such as *Vibrio cholerae* and other vibrios, *E. coli*, *Salmonella*, *Shigella*, and rotavirus. Much of the research effort is directed towards developing vaccines against these enteric pathogens and tuberculosis, as well as vaccine testing against malaria

and other nonenteric diseases. The division maintains a close relationship with the Department of Epidemiology and Preventive Medicine where fellows may take courses in epidemiology and biostatistics during their training. Application is made through the fellowship program director.

Division of Gerontology

Professor and Head

Andrew P. Goldberg, MD

The goals of the gerontology division at the University of Maryland School of Medicine are to teach students and house staff the principles of gerontology and geriatric medicine, and to train fellows and junior faculty for academic careers in aging research and clinical geriatric medicine. The program emphasizes research in the biology of aging, the prevention of cardiovascular disease and the rehabilitation of disabled older people in clinical trials which examine the physiological and functional effects of exercise training and nutritional interventions. This enriched academic environment allows trainees to learn skills of clinical geriatrics and basic research for careers in gerontology.

MEDC 545-23. Geriatric Medicine Elective. There is a wide spectrum of research, clinical and educational programs for students, house staff, fellows and physicians interested in clinical training and research in gerontology and geriatric medicine. There are opportunities for research training in: 1) exercise physiology and nutrition in the management of cardiovascular disease risk factors in high-risk older patients; 2) rehabilitation and longitudinal management of the elderly to maintain functional independence and exercise capacity to prevent institutionalization; and 3) basic mechanisms of age-related declines in cardiovascular, metabolic and musculoskeletal function. Trainees work closely with faculty members in a research curriculum that provides mentored training in clinical and basic scientific investigation and in the conduct of clinical trials. A Geriatric Research Education and Clinical Center and Claude C. Pepper Older Americans Independence Center provide resources for training in basic research, clinical medicine and health services research focused in prevention and rehabilitation of older patients with risk factors of complications of cardiovascular diseases. Academic programs in these centers seek to increase the basic knowledge of the aging process and prevent disability from cardiovascular disease through clinical trials of aggressive risk factor and rehabilitation interventions. Knowledge gained from these studies is imparted to health care providers, students and trainees through system-wide educational programs.

The clinical programs teach the principles and applications of the treatment and management of older patients with a wide spectrum of acute and chronic medical diseases and preventive geriatric medicine. Instruction is provided in primary, consultative and long-term care of patients in various clinical facilities of the University of Maryland Medical System. Trainees learn the physiology of aging and principles of geriatric assessment, preventive maintenance and the treatment and care of the older patients in ambulatory medical practices, acute in-patient services, geriatric rehabilitation units and in a comprehensive home care program for frail, homebound patients. There is clinical training in geropsychiatry to learn counseling, psychopharmacologic and ethical issues in the management of older patients with mental illness. This approach provides wide clinical exposure and training in relevant skills for an academic career or clinical practice in geriatric medicine.

POSTGRADUATE FELLOWSHIP TRAINING

The division has an accredited fellowship training program funded by the National Institute on Aging researches the effects of exercise and nutritional interventions on the pathophysiology of type 2 diabetes, hypertension, hyperlipidemia and changes in body composition with aging. Post-

graduate training emphasizes basic and clinical research in the pathophysiology of aging-related diseases and the mechanisms by which exercise and dietary interventions prevent cardiovascular disease and disability in at-risk older people. Fellows completing post-graduate training in gerontology are eligible for board certification in geriatric medicine.

Division of Hematology and Oncology

Associate Professor and Head
Barry R. Meisenberg, MD

UNDERGRADUATE COURSES

Fourth Year

HEMA 541-01. Clinical Elective. Broad clinical experience in both malignant and nonmalignant hematologic disorders is available. Students perform hematology consultations with fellows and senior staff and have the opportunity to attend multiple clinical and laboratory conferences within the University of Maryland Greenebaum Cancer Center. Extensive experience in bone marrow aspiration, biopsy and interpretation is provided. Rotations are for a minimum of four weeks.

MEDC 549-01. Medical Oncology Electives. Two different medical oncology electives are available. Students may choose a subinternship on the inpatient service of the University of Maryland Greenebaum Cancer Center, which provides students and postgraduate physicians with in-depth studies of the diagnosis, natural history and treatment of human cancers. Students will take an active role in the day-to-day management of patients on an inpatient cancer ward and will work closely with the attending and hematology/oncology fellow. Clerkships in oncology provide close interactions with fellows and oncology attendings on the oncology consult service. The wide diversity of internal medicine diseases seen during the natural history of many cancers makes this an intense course in the treatment of many internal medicine problems common to adult patients. Clerkships on the medical oncology consultation service provide interaction with other specialties in the management of as yet undiagnosed patients as well as the early detection, diagnosis and staging of malignancy. Individuals on clerkships are expected to attend a large number of conferences available on a weekly basis that provide didactic information about natural history, new treatments and evolutionary changes in the laboratory understanding of neoplasia.

Research Electives. Summer research electives in various aspects of hematologic malignancies are available. Opportunities are available to work in the cell component therapy section of the University of Maryland Greenebaum Cancer Center (a specialized transfusion service), an active cytogenetics laboratory, an immunology laboratory studying antigenic characteristics of malignant cells, as well as the acquired immune deficiency syndrome (AIDS), electron microscopy laboratory and laboratories engaged in the study of leukemic cell differentiation and cellular pharmacology. Stipends may be available.

Division of Hypertension

Professor & Head
Elijah Saunders, MD

UNDERGRADUATE COURSES

First and Second Years

Selective lectures are given on hypertension as a part of the physiology, pharmacology, pathology and preventive medicine courses.

Fourth Year

Electives are available for fourth-year students who will be exposed to and participate in the entire program of the hypertension division. This includes experience and supervision in the diagnosis and treatment of hypertensive patients on both an inpatient and outpatient basis. Daily rounds by senior members of the hypertension division will include students electing this rotation. Students will attend the Hypertension Faculty Practice Office and participate in the care of private patients in a very busy office devoted to the care of difficult hypertension problems. Students will participate in ongoing clinical research programs when appropriate. Students may also elect to attend the weekly cardiology clinical rounds sponsored by the cardiology division and the Hypertension and Vascular Biology Center research rounds when scheduled.

Summer Fellowships

Summer fellowships in hypertension are available to junior and second-year students (who have taken physical diagnosis). Participation in clinical drug trials will be offered.

GRADUATE PROGRAM

Electives for a minimum of one month are available for house officers-in-training at the University of Maryland Medical Center and relevant conferences in the Baltimore community can be attended. Electives are encouraged for residents interested in cardiology, nephrology or endocrinology as well as a career in internal medicine with emphasis on hypertension. Trainees will have an opportunity to work with hypertension specialists from the Johns Hopkins University School of Medicine and School of Public Health, the Maryland Department of Health and Mental Hygiene, the Hypertension Commission of Maryland, the American Heart Association, and the Baltimore Alliance for prevention and treatment of hypertension and diabetes, and other programs in the community which have an interest in hypertension.

Although the hypertension division does not currently have a fellowship program, training opportunities for fellows from other divisions can be arranged.

Division of Infectious Diseases

Professor and Head
Michael S. Donnenberg, MD

UNDERGRADUATE COURSES

Fourth Year

INFE 541-01. Infectious Diseases Elective. The discipline of infectious diseases is uncommon in internal medicine in that it is not restricted to a single organ system. Indeed the Infectious Diseases Consultative Service serves patients in virtually all departments of the hospital. Many of these

patients are among the most acutely ill and they often pose the most difficult diagnostic enigmas. These presentations are more than an academic challenge; many infectious diseases can be cured and the patient restored to previous health.

A practical working knowledge of clinical infectious diseases has become absolutely critical for the following reasons: (1) there has been a huge increase in the numbers of immunosuppressed people, not only from HIV infection but also from the substantial increase in bone marrow and solid organ transplant recipients, the more aggressive use of cytotoxic chemotherapy and more invasive and life-sustaining ICU modalities; (2) the explosion of new antiviral, antifungal and antibacterial agents requiring familiarity with their spectrum of action and toxicities; (3) the proliferation of multiple-antibiotic resistant pathogens which presents virtually untreatable infections; and (4) the focus upon infection control, cost containment and quality of practice which have arisen with the increased attention to the economics of health care. The diagnosis of infections and proper management of patients with these diseases are taught by exposing students to a broad spectrum of clinical problems. The appropriate use of microbiology, virology and serology laboratories is stressed. The student sees consultations under the supervision of a full-time attending at the University of Maryland Medical Center and Baltimore Veterans Affairs Medical Center. Specialized programs are available in AIDS/HIV, in transplant infections, at Shock Trauma, and at the Greenebaum Cancer Center. A clinical infectious disease conference for faculty, house staff and students is held weekly.

POSTGRADUATE FELLOWSHIPS

The Division of Infectious Diseases offers two postgraduate fellowship programs: one in General Infectious Diseases and one designed for individuals who wish to specialize in HIV care. Within each program, there is a clinical track and a research track. The first year is similar in both programs and tracks. This year is clinically oriented and is spent consulting on patients with problems related to infectious diseases. A very diverse experience is obtained through rotations at the University of Maryland Medical Center and Baltimore Veterans Affairs Medical Center, the Greenebaum Cancer Center, the solid organ transplant service, the inpatient HIV unit, and in the Clinical Microbiology Laboratory. Fellows see consults and supervise residents and medical students, and spend much of their time teaching and providing patient care. This is all performed under the guidance of full-time faculty, many of whom are experts in subspecialties within infectious diseases, such as infections in transplant recipients, neutropenic host infections, surgical infections and infections in HIV-infected people. During the first year the general and HIV programs differ only in the amount of time spent on the inpatient HIV medical service and the general consult service. Those individuals in either program who have chosen a clinical track spend the second year equally divided between the various rotations and on electives. Available electives include rotations in the Shock Trauma unit, in the Baltimore City Health Department, on the infectious disease service at the National Institutes of Health, and performing clinical research. Those individuals on the research track spend the second and subsequent years of the program performing original research. Research interests in the division include molecular pathogenesis of bacterial infections, HIV infections, the physiology of acute inflammation, CMV, HIV, papilloma virus infections, infections in cancer patients or severely traumatized patients, and infection control and nosocomial infections. Research interests within geographic medicine include microbial genetics, pathogenesis of diarrheal diseases, pathogenesis of malarial infections, and vaccine development. During the second and subsequent years the general and HIV program differ in that the electives and research opportunities of individuals in the latter program are oriented toward HIV infection. All fellows participate throughout their fellowship in a weekly longitudinal infectious diseases clinic, where under the supervision of the faculty they follow patients with HIV infections and other infectious diseases. Application is made through the fellowship program director.

Division of Nephrology

Professor and Head

Matthew R. Weir, MD

UNDERGRADUATE COURSES

Fourth Year

NEPH 541-01. Clinical Nephrology Elective. Students who have completed their required junior electives in medicine, surgery, pediatrics and obstetrics may elect a clinical rotation in nephrology. One-month to three-month electives will be accepted. The student is expected to become thoroughly familiar with the approach to patients with kidney diseases and acquainted with clinical procedures. Each student will present at one nephrology conference. The typical rotation involves the student in consultations with fellows and attending nephrologists, rounds on inpatients, renal clinic activities and exposure to the dialysis and organ transplantation programs. Students with special interests in particular aspects of kidney function or kidney disease may be permitted to pursue those interests after consulting with the division head.

NEPH 541-03. Nephrology Student Fellowship Elective, Maryland General Hospital. Students are exposed to the practice of clinical nephrology and to the management of acute and chronic renal failure and organ transplantation.

POSTGRADUATE FELLOWSHIPS

Qualified physicians may apply for full-time fellowships in nephrology. Although a one-year clinical fellowship in organ transplantation may be specially arranged, the standard fellowship is for two years of training with the first year structured to produce broad experience in clinical nephrology, dialysis and transplantation, its procedures and its literature and basic experience in the research lab. The second year is largely elective, permitting fellows to pursue their chosen direction with planning and supervision. Additional years of experience for those undertaking special projects are available. Fellows completing this program are qualified and prepared to be certified in nephrology.

Division of Pulmonary and Critical Care Medicine

Professor and Head

Steven R. White, M.D.

UNDERGRADUATE COURSES

First Year

Members of the division take part in teaching the physiology course with emphasis on the clinical application to basic respiratory physiology. This includes an introduction to clinical medicine and the sessions in the course on correlative medicine.

Second Year

In the pathophysiology and therapeutics curriculum, two weeks are devoted to the respiratory system. The teaching of clinical medicine is integrated with epidemiology, pharmacology and microbiology. This is not a course in respiratory diseases. The most common and important groups of diseases are discussed as well as the pathology of respiratory diseases.

Fourth Year

PULM 541-01. Pulmonary Diseases Elective. Fourth-year students participate in all of the activities of the division under the supervision of fellows and faculty. They see patients in the wards, in consultations and in the outpatient clinic. The students learn to interpret tests of pulmonary function and attend all of the conferences in which fellows and faculty participate. Emphasis is on the correlation of clinical features with pathophysiologic and roentgenographic features.

PULM 541-05. Medical Intensive Care Elective, University of Maryland Medical Center. The goal of this course is to provide students with clinical experience in managing patients seen in a medical intensive care unit. Students will function at the sub-intern level as primary physicians and will work with the resident and fellow in charge, as well as the attending physician. Students will receive a sound background in circulatory and respiratory physiology. They will be exposed to various invasive techniques, including arterial line insertions, Swan-Ganz catheterizations and chest tube placements. In addition, there will be exposure to the use of mechanical ventilation in the critically-ill patient.

POSTGRADUATE FELLOWSHIPS

Stipends are available for the support of nine fellows at the current University of Maryland Medical System postgraduate scale. Three years of training in internal medicine are required. The goal of the program is to train physicians who are competent in the subspecialties of pulmonary and critical care medicine, and in basic or clinical investigation.

Division of Rheumatology

Professor and Head

Marc C. Hochberg, MD, MPH

UNDERGRADUATE COURSES

First Year

Members of the rheumatology division participate in teaching the immunology section of the microbiology course, the immunopathology section of the pathology course, clinical correlation in the biochemistry course, and the epidemiology and biostatistics course.

Second Year

The division teaches the examination of the musculoskeletal system during physical diagnosis. Students are provided with a copy of the Primer on the Rheumatic Diseases.

Third Year

During their rotation on medicine at the University of Maryland Medical System or the Baltimore VA Medical Center, junior medical students interact with rheumatology faculty and fellows on the rheumatology consult service and receive lectures on diagnosis and management of arthritic and connective tissue diseases. Weekly rheumatology grand rounds are open to students.

Fourth-Year Students and House Officers

The rheumatology division offers a clinical elective for senior medical students and medical house officers designed to present the spectrum of rheumatic disease and approaches to diagnosis and management. Integration of clinical features with the mechanisms of disease processes is accomplished through informal tutorial sessions as well as didactic lectures. The rationale for the various management programs including drug therapies, physical medicine and orthopaedic surgery is emphasized. Experience is gained in performance of diagnostic procedures (e.g., arthrocentesis)

and in interpretation of relevant laboratory data. Patients are seen in the out-patient clinics at University Health Center and VA Medical Center, as well as in the Faculty Practice Office and on the in-patient consult service.

POSTGRADUATE FELLOWSHIPS

The division of rheumatology and clinical immunology offers a two-year clinical fellowship and a three-year research fellowship that emphasize training in both the clinical and research aspects of rheumatology. The purpose of the three-year research fellowship is to produce physician-scientists who are well trained clinically and scientifically and who are dedicated to an academic, research-oriented career. Three years of prior training in internal medicine are required.

Microbiology and Immunology

Professor and Chair

Jan Cerny, MD, PhD

Training in microbiology & immunology within the medical school curriculum occurs primarily during the sophomore year when all students are required to take the course on Host Defenses and Infectious Diseases. Emphasis is placed on basic mechanisms of immunity, principles of microbiology, medical aspects of infectious diseases and related concepts of pathology, pharmacology and epidemiology. In addition, selected Graduate School courses are available to medical students in all years. Individual faculty members are available to provide instructions and guidance throughout the medical curriculum. The department also offers the PhD degree and encourages students to enroll in the MD/PhD program.

RESEARCH INTERESTS

The research programs within the Department of Microbiology and Immunology are oriented toward the molecular biology of infectious agents, foreign invader-host cell interactions and the molecular and cellular analysis of the immune response. Specific projects in immunology and cell biology include molecular analysis of antibody and T-cell receptor genes; lymphocyte activation, differentiation and ontogeny; autoimmune diseases and immunology of aging; and cellular and viral oncogenes. Projects on microbial disease mechanisms include studies on regulation of gene expression in procaryotic and eukaryotic systems, molecular genetics of pathogenic bacteria; pathogenesis of vector-borne infectious agents; and new strategies for development of vaccines. Studies on latent virus infections, including immunodeficiency viruses (HIV) and herpes viruses, are carried out jointly with the Institute of Human Virology. Medical students are encouraged to participate in elective research programs of their interests.

UNDERGRADUATE MEDICAL PROGRAM

Second Year. Microbiology and immunology faculty have major teaching responsibility in the second year, integrated course on Host Defenses and Infectious Diseases. This is the first teaching bloc of the second year and is approximately 12 weeks in duration. When appropriate, faculty also teach in the Pathophysiology and Therapeutics block.

A number of Graduate School courses are available to qualified students. Interested students should contact the department for details.

Professor and Chair
Kenneth Johnson, MD

Third Year

NEUR 530. Neurological Sciences III. All members of the third-year class have a four-week neurology clerkship as part of an eight-week integrated neurology/psychiatry rotation. For the neurology portion students rotate on one of the neurology or neurosurgery services at University of Maryland Medical Center or the adjacent Baltimore Veterans Affairs Medical Center. The neurology and psychiatry staff provides a didactic series of lecture-demonstrations, and students attend the combined conferences in both disciplines. In addition, students attend rounds and assist in the performance of procedures. Under house staff and attending staff supervision, students are responsible for the care of patients with neurological disorders in the critical care units, on the hospital wards, and in the outpatient clinics.

ELECTIVES

NEUR 541. Clinical Electives. After completion of the third year, students are offered a variety of clinical experiences on the neurological service at University of Maryland Medical Center, Mercy Medical Center, the Baltimore Veterans Affairs Medical Center and the James Lawrence Kernan Hospital. The neurological examination of the patient is emphasized, as well as the study and application of a wide variety of specialized neurological diagnostic techniques. Each student will become proficient in taking a neurological history, performing a neurological exam, and formulating a reasonable diagnostic impression, differential diagnosis, plan of investigation, and management plan for several of the more common neurological problems.

NEUR 548. Neurological Research Electives. In all four undergraduate years, a limited number of students will have the opportunity to work with individual members of the department in the following areas: 1) cerebrovascular physiology; 2) neuromuscular disease; 3) neurophysiology; 4) neurochemistry; 5) neurovirology and immunology; 6) computers and neurology; 7) epilepsy; 8) degenerative disorders; and 9) molecular-biology and the nervous system.

STUDENT FELLOWSHIPS

Students who have completed their first, second or third years and have an interest in neurological sciences may apply for additional training in clinical neurology or in one of the research laboratories of the department. Qualified students may receive remuneration as fellows for the 10-week fellowships taken during vacation periods.

GRADUATE STUDIES

There is a fully approved three-year residency training program in the specialty of neurology at the University of Maryland Medical System. This provides for clinical training as well as rotation through the associated basic science disciplines. In addition, fellowships are available for subspecialty neurology training, such as EEG and epilepsy, EMG and peripheral nerve disorders, stroke, neuroimmunology and neurorehabilitation. For further information contact the department chair.

Neurosurgery

R.K. Thompson Professor and Chair

Howard M. Eisenberg, MD

The Department of Neurosurgery manages patients with a large variety of neurosurgical conditions. The department places special emphasis on cerebrovascular surgery, neuro-oncology, spinal surgery, epilepsy surgery, Gamma Knife radiosurgery and pediatric neurological surgery. Active neuro-trauma service at the Shock Trauma Center offers opportunities to not only participate in clinics and the operating room, but also critical care rounds dedicated to the central nervous system.

RESEARCH INTERESTS

Two laboratories of specialized research programs are actively maintained within the department. The Cerebrovascular/Ion Channel Physiology Laboratory studies cellular mechanisms regulating cerebral blood flow focusing on ion channel function in cerebral smooth muscle using the patch clamp technique. The Neuro-oncology/Molecular Biology Laboratory is devoted to the study of programmed cell death in malignant brain tumors. These basic science research activities are complemented by on-going clinical trials of pharmacological agents for treatment of cranial and spinal trauma, cerebral vasospasms and brain tumors.

UNDERGRADUATE MEDICAL PROGRAM

Third or Fourth Year (Surgical Subspecialty)

During the third or fourth year, students may choose to spend two weeks on the neurosurgical service as part of the surgical subspecialty clerkship. Opportunities are provided for observing neurosurgical procedures and participating in all service activities.

Fourth Year (Sub-Internship)

A fourth-year elective is available in general neurosurgery. The student works on the neurosurgery service for three weeks and one week on the neurotrauma service. Student responsibilities are significantly enhanced in the operating room and in providing patient care. Special preceptorships in pediatric neurosurgery, neuro-oncology and neurotraumatology are also offered.

GRADUATE STUDIES

A training program in neurological surgery is available to graduates of accredited medical schools who have completed one year of general surgical residency. The five-year program based at the University of Maryland Medical System provides residents with the opportunity to develop their general neurosurgical skills while gaining valuable experience in research and subspecialty areas.

Obstetrics, Gynecology and Reproductive Sciences

Assistant Professor and Interim Chair

Hugh E. Mighty, MD

The department provides a learning experience that encourages each student, regardless of ultimate career choice, to develop professional attitudes, diagnostic skills and knowledge relevant to the human female and to her sexual and reproductive systems. This experience enables each student to assume more effective responsibility for the general delivery of health care to the adolescent, adult and aging female, and to the newborn.

The student is taught to recognize those patients who require special gynecologic consultation. Health-related reproductive and social issues such as family planning and sexually transmitted diseases are discussed, as well as other aspects of sexual difficulties, sterilization and pregnancy choice.

The educational material is presented to familiarize students with all sources of knowledge relevant to these subject areas. Students may extend their knowledge and skills in a direction and depth appropriate to current and ultimate career goals. Students are also encouraged to take electives in basic, clinical and social research.

The service roles focus on the general areas of obstetrical and gynecologic care. Obstetrics deals with a high-risk pregnancy population and provides excellent educational opportunities for both student and resident. Specialty clinics in endocrinology, complicated pregnancy, cancer, pre- and postoperative evaluation and family planning provide specific, specialized areas of instruction in addition to serving large numbers of patients. Cancer detection and therapy play a major part in the gynecologic program.

The department utilizes audiovisual aids to enhance the educational experience of both medical students and residents. The faculty also contributes to the postgraduate educational programs at the University of Maryland Medical System and throughout the state.

UNDERGRADUATE MEDICAL PROGRAM

The Department of Obstetrics and Gynecology faculty teach in the first-year Cell and Molecular Biology and Functional Systems blocks, and in the second-year Pathophysiology/Therapeutics block.

Third Year

OBST. 530. Clinical Clerkship. Students are assigned to obstetrics and gynecology for a period of six weeks. As clinical clerks, they participate in the original diagnostic studies, pelvic exam, surgical procedures and postoperative care of hospitalized patients. Instruction in prenatal and gynecologic outpatient care is accomplished in our community clinics. Seminars and departmental conferences with the attending staff and house officers are employed for teaching the art of correlating observations, diagnosis and therapy. Frequent and close contact with faculty is achieved by means of a preceptorial system that assigns a group of three to four students to a member of the faculty for the entire clerkship. As an alternative to the clerkship at the University of Maryland Medical System, a similar instructional program is offered to a limited number of students by the obstetrics and gynecology departments at Mercy Medical Center and Greater Baltimore Medical Center.

Fourth Year

OBST. 541. Obstetrics and Gynecology Elective. The student may choose to spend a four-week elective in one of five subspecialty areas: high-risk obstetrics, endocrinology, oncology, ambulatory OB/GYN, and human genetics.

Affiliated Hospital Electives: Electives are available at Mercy Medical Center.

Several additional electives are listed with the Office of Student Affairs.

Professor and Chair

Eve Juliet Higginbotham, MD

UNDERGRADUATE MEDICAL PROGRAM

Ophthalmology is integrated into the medical school curriculum throughout the four-year period. Introductory lectures in ophthalmology are given in the first year as part of physiology. Second-year medical students are introduced to clinical ophthalmologic techniques and common ophthalmologic diseases during the physical diagnosis course. During their medical clerkships, third-year students participate in both inpatient and outpatient examinations with ophthalmology staff.

Clinical and research electives are available during the senior year. For the clinical clerkship, time is divided between the outpatient clinic and the operating room. Patients with a wide range of diseases are seen together with faculty who have subspecialty interests. Conferences and grand rounds are included in the program. Self-instructional aids are available.

RESEARCH INTERESTS

A variety of clinical trials funded by NIH and industry are ongoing in the department. Infant vision, retinopathy of prematurity, ischemic optic neuropathy, glaucoma, and AIDS trials are currently in progress.

Basic research efforts of the department currently concentrate on ocular changes from diabetes mellitus and ocular toxicity of radiant energy. Other projects include biochemical effects of aldose reductase and its specific inhibitors on the lens, including oxygen toxicity to the lens, particularly as related to light-induced damage. Also, projects related to hormonal control of retinal pigment epithelium, as well as experimental ocular pathology, form a major part of the research program. Elective study opportunities exist for students in this active ophthalmic biochemical research program. Postdoctoral fellowships in ophthalmic biochemistry are also available.

GRADUATE PROGRAM

A three-year residency program providing clinical training is offered at the University of Maryland Medical System, with rotations to the Baltimore and Wilmington, Del. VA Medical Centers. Appointment is by application to the Department of Ophthalmology, University of Maryland Medical System.

In addition, the department also conducts graduate studies in ocular biochemistry in collaboration with the Graduate School. Facilities for postdoctoral studies are available.

Orthopaedic Surgery

James Lawrence Kernan Professor and Interim Chair

Andrew R. Burgess, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

As part of the basic surgical clerkship, general principles of orthopaedic surgery are taught and students are introduced to fracture recognition and management, orthopaedic reconstructive surgery and to common outpatient conditions affecting the musculoskeletal system. Students electing a clinical rotation during the clerkship participate in patient diagnosis and treatment, as

well as operative procedures. They receive practical instruction in the use and application of various splints and casting techniques. Student conferences and didactic sessions are conducted to supplement the division's intensive academic program.

Fourth Year

Senior students may participate in one-month electives during which they obtain internship-level clinical and surgical experience. The elective is offered on each of the University of Maryland Medical Center services and at the Shock Trauma Center. Students participate in weekly orthopaedic conferences and seminars. Each of the senior electives is under the direction of a full-time member of the orthopaedic faculty.

Graduate Studies

The Department of Orthopaedic Surgery offers an accredited four-year residency program. Clinical and surgical experiences are obtained on the foot, hand, tumor and chronic spine services at the University of Maryland Medical Center. Experience with major trauma and spinal injury is obtained at the Shock Trauma Center. The pediatric orthopaedic service is based at the James Lawrence Kernan Hospital. An intensive academic program in basic science and clinical orthopaedic surgery has been developed for resident education. Each resident has a mandatory research assignment.

Orthopaedic Residency and Fellowship Programs

The Department of Orthopaedic Surgery offers an accredited five-year residency program. Clinical and surgical experiences are obtained on the hand, spine, sports, joint replacement, trauma and pediatric services. The University of Maryland Sports Medicine program serves as official team physicians to the NFL-franchise Baltimore Ravens and all collegiate teams at the University Maryland College Park campus. Resident rotations are performed at the University of Maryland Medical Center, the R. Adams Cowley Shock Trauma Center, Kernan Hospital, Baltimore VA Medical Center and community practices. Residents are involved in basic science education, formal journal clubs and other didactic sessions, and complete a research assignment. The Department of Orthopaedic Surgery also offers fellowships in sports medicine, spine and orthopaedic trauma.

Pathology

Professor and Interim Chair
Sanford A. Stass, MD

The mission of the Department of Pathology is to advance knowledge that will increase the understanding of disease process mechanisms. This knowledge will directly aid the development of better diagnosis, treatment, and prevention of human diseases. This goal necessarily includes the instruction and training of students to become biomedical researchers, physician practitioners of pathology, physician researchers, and allied health professionals in pathology and pathology related disciplines. Our mission is achieved through an experiment-based approach to disease. We believe that pathology is a crucial discipline to carry out translational research that directly bridges basic biomedical science to the patient. Our goals also include continuing the education of health professionals in current concepts and technologies of pathology.

Students achieve this goal in three phases: 1) by acquiring the basic principles of pathology and applying those principles to the diagnosis and study of health care delivery expressed in diagnostic areas such as surgical pathology, clinical pathology, cytology, forensic pathology and autopsy

pathology; 2) by establishing a philosophy of critical evaluation and judgment concerning the problems of health and disease in humans; and 3) by developing a sense of personal responsibility and ethics for the practice of medicine.

The department maintains that the study of disease include both structure and function and is conducted from the molecular level to that of the patient. Students are exposed to anatomical and clinical hospital pathology services with additional training at Baltimore Veterans Affairs Medical Center and other local hospitals.

UNDERGRADUATE MEDICAL PROGRAM

The Department of Pathology faculty teach during both the first- and second-year blocks. However, primary involvement occurs in the second-year with the "Immunology, Host Defenses and Infectious Disease, Epidemiology and Preventive Medicine" block, and in the "Pathophysiology and Therapeutics" block. Pathophysiology and the study of the mechanisms of disease as well as morphology are stressed.

ELECTIVES

Elective course offerings supplement the core program for medical students. These offerings span a wide range from system-oriented courses such as renal, pulmonary, neurological or cardiovascular pathology to process-oriented instruction such as environmental pathology, carcinogenesis, and research seminars. Seminars engage guest speakers who are the leading authorities in their field. Research and clinical preceptorships are encouraged.

Other available courses are of a more general interest and include seminars in clinical pathology or clinical clerkships in Baltimore area hospitals. Medical students also have access to courses in experimental pathology such as histochemistry, tissue culture or pathological biochemistry.

ADVANCED ACCELERATED PROGRAM IN PATHOLOGY (AAPP)

The AAPP admitted the first group of students in 1975 in an effort to permit early specialization and target-oriented education. The pathology track begins in the freshman year, making use of all the resources of the Department of Pathology and includes three types of experience: 1) exposure to the practice of pathology, 2) study of one selected field of emphasis, and 3) exposure to research. Up to five students may be admitted during their first year. Students are required to fulfill all the requirements of the track; however, they are not committed to seek a career in the field of pathology. Training in the track program provide the student with the knowledge of a one-year residency program. Time spent in training within the track program can count toward elective or residency time.

RESEARCH INTERESTS

Research efforts in the Department of Pathology focus upon the pathobiologic mechanisms of human disease at the cellular, subcellular and molecular levels. Current projects involve a broad spectrum of diseases, which include cancer, immunologic disease, heart disease, shock, infectious disease and aging.

Cancer research efforts focus upon accurately defining the sequence of events within cells following their exposure to confirmed carcinogens, mutagens and environmental toxins. This involves the development of varied strategies for assaying human risk from environmental pollutants and the development of animal and fish models for human disease with environmental etiologies.

Research efforts in heart disease are directed toward providing a definitive description of the mechanisms that lead to cell death subsequent to the depletion or complete loss of oxygen supply. Identification of parameters whose manipulation might result in impeding or halting cell death, and development of improved methods of therapy for preventing the damaging effects of shock are integral components of this research.

Faculty research projects focus on: the delineation of the mechanism by which microbes invade and destroy human cells; the identification of microbial antigens with the capacity to elicit an autoimmune disease in the host; the study of mechanisms of immunologic injury as related to complement-mediated lysis; immune complex diseases and autoimmunity; and the analysis of the events leading to cell death as a consequence of the normal process of aging.

GRADUATE PROGRAM

The Department of Pathology offers four graduate program tracks: PhD; combined MD/PhD in medical pathology; Master's (thesis track); Master's (non-thesis track: Pathologist's Assistant training). Areas of concentration offered in the MS degree program of medical pathology include anatomic pathology and clinical chemistry. The master's and doctoral programs train individuals for research and service in pathology and related fields. Research programs use modern techniques, which include quantitative microscopy, flow cytometry with cell-sorting capability, spectrofluorometry, calcium imaging, bioimaging and confocal microscopy, DNA microanalysis and proteomics.

The program track leading to a PhD in medical pathology includes comprehensive training in experimental pathology with emphasis on the pathogenesis of cell injury and carcinogenesis; gene therapy; environmental pathology; development of new diagnostics; and immunology. Students working toward the combined MD/PhD degree in medical pathology are enrolled simultaneously in the School of Medicine and the Graduate School. The specially tailored graduate program recognizes the work and academic achievements of students in the combined program and are designed to meet their specific goals and research interests as physician-scientists.

For details of admission requirements and course offerings, see the pathology section in the Graduate School catalog.

Pediatrics

Professor and Chair

Jay A. Perman, MD

Our Vision

To assure every child in Maryland the very best medical care available in an environment dedicated to children and their families, with services fully integrated to meet individual needs.

As the outstanding regional and community referral resource for the primary, specialty and critical care of infants and children, we commit to provide:

- Inpatient care for our sickest children and support for their families, including complete subspecialty and emergency services;
- Strong community service, emphasizing preventive care, especially among at-risk populations;
- Solid clinical and educational experiences for our students and residents—many of them Maryland's future pediatricians, nurses and other health care professionals;
- An emphasis on laboratory and clinical investigations to ensure the leadership role we've established in children's health care research.

There are 17 subspecialty divisions within the department.

- The **Division of Adolescent Medicine** provides clinical care for adolescents from 12 to 21 years of age in a variety of clinical settings such as the hospital-based adolescent clinic and school-based clinics.
- The **Division of Immunology/Rheumatology** provides care for a diverse group of patients with special emphasis on immune deficiency diseases. The department is nationally recognized for its HIV evaluation and treatment program.
- **Behavioral and Developmental Pediatrics** is a division that provides evaluation and treatment services both at the tertiary center and in community sites throughout the state. Care is provided for children with dysfunctional behavior and developmental problems, disabilities or handicaps. Consultation is provided to a number of local schools.
- The **Division of Cardiology** provides exercise testing, Holter monitoring, pacemaker implants, and two-dimensional echocardiography color flow. A dedicated pediatric catheterization laboratory is the site for state-of-the-art therapeutic interventions. Comprehensive fetal echocardiographic services make the department a leader in the field.
- The newly established **Center for Child Protection** allows us to combine the expertise of faculty nursing and social services in advocating for children's issues in the courts as well as advocating on state and national levels.
- A multidisciplinary staff of critical care specialists meets the special medical, emotional and social needs of the sickest children and their families with great compassion and skill. Many patients come to the pediatric intensive care unit via our highly respected **Maryland Express Care for Kids**, the largest nurse-led pediatric critical care transport team in the state.
- Endocrinology is an internationally recognized division for both its research program and clinical endocrine diagnostic unit. The pediatric diabetes program has joined the **Joslin Center for Diabetes** at the University of Maryland, a world renowned program in diabetes care.
- The **Division of Gastroenterology and Nutrition** is a resource for children with hard-to-diagnose gastrointestinal problems. This is the country's first center for diagnosis and treatment of celiac disease. The division partners with the Center for Vaccine Development to do research on infectious diarrhea and vaccine development.
- As an affiliate of a major national cancer network, the **Division of Hematology/Oncology** affords patients expert information, hard-to-get experimental drugs, and state-of-the-art test and treatment regimens. A team of physicians, nurse clinicians, social workers and child life specialists provides sensitive medical care for children and emotional support for families.
- Through the **Division of Human Genetics**, genetic, pediatric and obstetric expertise is integrated to provide clinical and laboratory services for diagnosing and managing genetic disorders. We offer comprehensive genetic evaluations, genetic testing, and prenatal diagnosis and counseling.
- Unique in the United States is the **Division of Infectious Disease and Tropical Pediatrics**. The mission of this division includes ongoing consultation with the Agency for International Development, the World Health Organization and the Pan-American Health Organization. Many of the faculty are also members of the School of Medicine's Center for Vaccine Development.
- The **Division of Neonatology** provides advanced tertiary care for the smallest and sickest newborns. The state-of-the-art, 40-bed NICU is the largest in the state. The division collaborates with its counterpart at Johns Hopkins Hospital in providing transport of critically ill neonates from community hospitals to a tertiary center for intensive care.

- Within the **Division of Nephrology**, a multidisciplinary team composed of a physician, social worker, dietitian, child life specialist, teacher and psychologist work together as a team. They strive to help patients with chronic renal disease maintain a lifestyle as similar as possible to that of healthy children.
- Clinical care in the **Division of Neurology** focuses on developmental disabilities, progressive degenerative disorders and epilepsy. The Pediatric Headache Clinic is one of only two such clinics in the United States.
- The **Division of Pediatric Medicine** is comprised of a group of academic generalists committed to primary patient care, education and clinical research. The faculty within this division precept the residents for their longitudinal continuity clinic experience. In addition, the **Community Practice Program**, spearheaded by a member of this division, provides a complementary continuity experience in the community.
- Clinical care for children with asthma via a Breath Mobile, which provides community access to a health care team, forms the cornerstone of the **Division of Pulmonary/Allergy**. Other areas of expertise include the care of children with chronic lung disease, food allergy, and latex allergy. A research center for the genetics of asthma complements the clinical program.
- The PhD faculty within the **Division of Pediatric Research** have a primary mission to conduct bench research. These scientists collaborate extensively with clinicians. The focus of this division is to conduct studies in developmental biology with a special emphasis on mental retardation and Sudden Infant Death Syndrome.

In addition to the work in this division, each of the other specialty divisions does research within its own area of expertise. The department ranks among the top 10 of all public university pediatric departments in federal research grant awards, and the top 20 overall. Grants and contracts total more than \$19 million.

- The **Sudden Infant Death Syndrome (SIDS) and Pediatric Sleep Disorders Institute** combine research and therapeutic services for infants at risk for SIDS. For older children at risk for obstructive sleep apnea or narcolepsy, overnight sleep studies are conducted and interpreted.

In addition, the department has a program in international health. Faculty at the University of Maryland Medical Center and Mercy Medical Center who have experience and ongoing interest in this area have developed liaisons in both Chile and Uganda. Residents interested in taking advantage of this opportunity can learn first-hand the interaction and impact of social, economic, cultural and biological factors on health and disease.

Our Community Partner

Mercy Medical Center provides patient care and educational experiences which complement those activities at the University of Maryland Medical Center. A NICU, full-term nursery, general inpatient unit, pediatric clinic and urgent care center provide a wealth of opportunities for residents and students to learn the practice of pediatrics from a community vantage point. Mercy is an affiliate and its staff are members of the faculty at the University of Maryland Medical Center. Here students and residents benefit from their interaction with the practicing community pediatricians.

GRADUATE EDUCATION

The **Division of Graduate Education** coordinates the graduate residency training programs. In a carefully balanced program of primary care, tertiary care and research, residents are prepared for careers in primary care medicine as well as for competitive fellowship positions. In addition to the training program in categorical pediatrics, training programs in Medicine/Pediatrics and Pediatrics/Emergency Medicine are also available. The combined programs foster interactions with colleagues who have expertise in other disciplines.

A structured, didactic curriculum complements the broad clinical training. Formal teaching conferences as well as informal teaching rounds combine to enhance the educational process. Residents are certified in neonatal and pediatric advanced life support. Programs are fully accredited by the Accreditation Council for Graduate Medical Education.

In addition to the three residency training programs, several fellowships are available. The divisions of Behavior and Development, Critical Care, Endocrinology, Infectious Diseases and Neonatology offer accredited fellowships that provide graduates the opportunity to become board-certified subspecialists. Post doctoral fellowships in genetics are available in clinical cytogenetics, clinical molecular genetics and clinical biochemical genetics. Postdoctoral training experience is also available in the Division of Infectious Disease and Tropical Pediatrics.

UNDERGRADUATE MEDICAL EDUCATION

First Year

Pediatric faculty participate in the Human Behavior block, as well as the Introduction to Clinical Practice Course. During the latter experience, students begin to learn the art of clinical medicine through patient interviews and observation in various clinical sites. Pediatric faculty also participate as facilitators for the problem-based learning curriculum.

Second Year

During physical diagnosis, students work with pediatricians on campus and in community sites in acquiring the skills necessary to perform a pediatric history and physical examination. The faculty also contribute to the didactic lecture series that ties basic science to the practice of medicine through clinical correlates.

Third Year

Each student spends a total of six weeks in pediatrics. The goal of this experience is to provide students with an exposure to preventive care through child health supervision as well as an exposure to common problems and illnesses. Students learn to provide developmentally appropriate care for the whole child in the context of the family unit. This is accomplished through clinical experiences in primary care clinics and practices, specialty clinics, the pediatric emergency department, nursery and inpatient unit. A specially designed didactic curriculum and case discussion series, with faculty tutors, enhance and solidify the clinical experience. Longitudinal continuity clinic experiences are also offered for students interested in fulfilling this requirement in pediatrics.

Fourth Year

A number of exciting opportunities are available for senior students wishing to get a more in-depth experience in pediatrics. One-month acting internships are available on the general ward service as well as in the neonatal and pediatric intensive care units. Ambulatory experiences both at University of Maryland Medical Center and Mercy Medical Center afford students the opportunity to see a large volume of children with a variety of clinical problems. Elective opportunities are also available in each of the subspecialty divisions outlined above. An elective month in a given subspecialty allows the student to focus on both inpatients and outpatients who are followed by the faculty in that division. Students assigned to a longitudinal continuity clinic experience in our ambulatory center have the option of continuing this experience during their senior year. A number of faculty within the department function as clinical advisors for students who wish to pursue residency training and ultimately a career in pediatrics.

Pharmacology and Experimental Therapeutics

Professor and Chair

Edson X. Albuquerque, MD, PhD

The department's teaching objectives are to provide medical and graduate students with those principles underlying the distribution, metabolism, mechanism of action and toxicity of therapeutic agents or substances. An overriding goal of the medical school teaching program is to convey the fundamental principles of basic and clinical pharmacology and therapeutics through an interdisciplinary teaching effort which brings together faculty from this department and those from other basic science and clinical departments. The faculty of the Department of Pharmacology and Experimental Therapeutics therefore provide substantial leadership and participation in the Pathophysiology and Therapeutics course given during the second year of the medical curriculum. When needed, the department also provides its teaching expertise to other courses throughout the four years of the medical curriculum.

GRADUATE PROGRAM

At the graduate level, there are three defined areas of study (tracks): oncopharmacology, neuropharmacology and pharmacological biotechnology. All three tracks incorporate: 1) training in modern techniques of pharmacology (molecular biology, receptor biochemistry, cell biology, tissue culture, radioimmunoassay, electron microscopy, traditional electrophysiology, patch clamping, etc.); 2) research directed toward the study of new drugs and increasing effectiveness of existing drugs used in treatment of human diseases; and 3) research to better understand actions of drugs and toxins on various organ systems. The department welcomes medical students into graduate research through the MD/PhD Program.

The Graduate School catalog describes the graduate courses and electives which are also available to medical students and includes introductory courses for each of the three tracks (neuropharmacology, oncopharmacology, pharmacological biotechnology). Some of the available courses are: biochemical pharmacology, developmental neurobiology, endocrine pharmacology, fundamentals of membrane transport, fundamentals of pharmacology, introduction to membranes, ion channels, molecular neuropharmacology, molecular oncopharmacology, pharmacological biotechnology, and synaptic physiology and pharmacology.

Faculty also offer elective summer courses tailored to the didactic and research needs of individual students. Students should consult the coursemaster or graduate program director for further details

Physical Therapy

Professor and Chair

Mary M. Rodgers, PhD, PT

The School of Medicine offers an entry-level Master's in Physical Therapy (MPT) Program. As an integral part of the health care delivery team, students and faculty strive to provide the best possible health care and service to their community and state. To help meet these standards, the department maintains a well-equipped faculty practice clinic and state-of-the-art, active research laboratories for faculty and students.

Students complete three to four years of pre-professional course work prior to beginning their studies on this campus, and three years of professional course work at the University of Maryland Baltimore leading to the MPT degree. In the third year, students have the opportunity to select elective courses, which vary according to student demand and faculty expertise.

Clinical education is an essential part of the department's physical therapy program. The department is affiliated with more than 275 clinical facilities throughout the country. Clinical experiences are provided in general acute, rehabilitation, orthopaedic/sports medicine, neurology, pediatric, geriatric, extended care, critical care, home health and community health settings locally and throughout the United States. The clinical education program is divided into three practicum periods totaling 26 weeks of full-time experience. During the clinical practicums, the student has the opportunity to integrate knowledge gained from courses and to expand skills in evaluation, treatment and interpersonal communication.

The faculty of the Department of Physical Therapy have research interests that are dedicated to understanding physical dysfunction and determining most effective treatment paradigms. The varied backgrounds of the faculty ensure an interdisciplinary approach in research, as well as collaborative projects with other departments. Current projects are related to the general areas of development, aging and response to exercise or electrical stimulation applied to specific clinical populations of wheelchair users, lupus, stroke and Parkinson disease. MPT students are encouraged to participate in research activities as hourly workers and/or as an elective experience.

The MPT degree is also available to practitioners who have completed an entry-level bachelor's degree in physical therapy. The length of study expected is one to two years, depending upon full- or part-time enrollment and the therapist's background. Another post-professional opportunity is the PhD in Physical Rehabilitation Science. Plans are currently underway for a post-professional Doctor of Physical Therapy.

For additional information contact:

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Physiology

Professor and Chair
Mordecai P. Blaustein, MD

The Department of Physiology provides lecture, laboratory and seminar coursework in the principles of human physiology for medical students and graduate students. Also offered are advanced courses in specialized areas of physiology for graduate students, fellows and interested medical students (see Graduate School catalog).

RESEARCH INTERESTS

The faculty of the Department of Physiology are dedicated to elucidating fundamental new information about the mechanisms that underlie physiological processes. Many of the department's research programs focus on four general areas: cell and membrane physiology, neurobiology, reproductive biology and endocrinology, cardiovascular physiology and renal physiology. The research programs encompass a number of topics with direct clinical relevance, including projects related to cardiac arrhythmias, congestive heart failure, reproduction and contraception, diabetes, cancer,

epilepsy and hypertension. Medical students are encouraged to participate in research activities during summer and other elective periods. Opportunities for combined MD/PhD training are also available.

UNDERGRADUATE MEDICAL PROGRAM

First and Second Years

The Department of Physiology is a major participant in the freshman curriculum with faculty teaching primarily in Neurosciences (Block VI) and Functional Systems (Block VII) in the first year.

Other opportunities: A number of elective courses, advanced seminars and research in special areas of physiology are open to interested students during the independent study or senior elective period or other free time. A combined MD/PhD program requiring additional coursework and original research is offered for highly qualified medical students. (See Graduate School catalog for additional advanced courses.)

Fourth Year

MPHY 542: Seminars in Physiology Elective. Advanced seminars in selected fields of physiology (e.g. cardiovascular, renal, endocrine and neural) are offered by arrangement with faculty each semester.

MPHY 548: Research Elective in Physiology in Selected Fields. Students may elect to carry out independent research programs in faculty laboratories.

Psychiatry

Professor and Chair

Anthony F. Lehman, MD, MSPH

The goal of undergraduate psychiatric education is to assist students in acquiring an understanding of and an appreciation for the application of behavioral and psychiatric principles in patient care and health maintenance through an exposure to a progressive sequence of intellectual stimulations, clinical experiences and appropriate professional socialization within the interdisciplinary framework of the new curriculum. More specifically, the curriculum aims to assist the student in: 1) acquiring a foundation of knowledge regarding the biological, psychological, sociological and humanistic aspects of the practice of medicine; 2) mastering basic interpersonal and psychiatric skills relevant to the management of patients with medical and/or emotional illness; and 3) emulating attitudes and values that enhance the professional roles and practices of a physician.

UNDERGRADUATE MEDICAL PROGRAM

First Year (Psychiatry faculty teach in Blocks II, V and VI of the freshman curriculum.)

Human Behavior. The Department of Psychiatry takes the lead in teaching the Human Behavior block which integrates information about human behavior from the biological, behavioral and social sciences as it applies to health, illness and treatment across the life span in our multicultural environment. The block introduces the important biopsychosocial framework, stressing the interacting influences of neurobiological, psychological and sociocultural factors on human behavior, illness and physician-patient interactions. The block is made up of lectures, small group sessions, demonstration/discussion periods and problem-based learning (PBL) groups. Psychiatry faculty contributes heavily to instruction and also serves as small group leaders in the Introduction to Clinical Practice Course.

Second Year

Psychopathology. This area of study is now taught as part of the neuroscience module of the Pathophysiology and Therapeutics course in the second year and through additional interdisciplinary teaching in other relevant systems (e.g., cardiovascular, endocrine, etc.) within the new curriculum. The module is designed to provide students with the basic concepts of pathophysiological and therapeutic interventions relevant to the neurosciences. This contains the core areas of clinical psychiatry, including psychopathology and the psychiatric treatment of mental disorders. The module seeks to foster an integrative approach to teaching by combining the knowledge and skills of faculty from the departments of Psychiatry, Neurology, Pharmacology, Pathology, Epidemiology & Preventive Medicine, Neurosurgery and Anesthesiology. The course format is based on lectures, audiovisual demonstrations (videotapes, live simulcast clinical interviews) small group discussions, problem-solving sessions and assigned readings for self-study.

Psychiatric Interviewing/Mental Status Examination. This component is part of the second-year Introduction to Clinical Practice (ICP) course which is devoted to specialty physical diagnosis and examination. The psychiatric course is devoted to psychiatric interviewing, history taking and the mental status examination. A general introductory lecture is followed by a series of two four-hour small groups sessions where each student performs a live psychiatric interview, observes fellow students performing interviews, and reviews interviewing techniques and psychopathologic concepts with the small group preceptor. Attempts are made to expose the students to patients with psychotic, affective and addictive disorders in their small groups of four to five students.

Third Year

Junior Psychiatry Clerkship (four weeks). The junior year provides the main clinical psychiatric experience for University of Maryland medical students. The psychiatry clerkship is now offered in collaboration with the Department of Neurology's clerkship in a required, combined eight-week experience in the junior year. This combined course still provides the student with a core psychiatric experience in addition to providing some integrative experiences with neurology.

The core four-week psychiatry experience combines acute inpatient, outpatient, consultation, addiction and emergency psychiatry assignments in which the student is exposed to an array of psychopathologies in a variety of treatment settings. Pharmacologic, psychotherapeutic, biological and psychosocial treatment modalities are utilized.

Students work under the preceptorship of a psychiatry attending and resident while assigned to the inpatient services. Four hospitals are utilized for these assignments. They include the University of Maryland Medical Center, the Baltimore VA Medical Center, the Walter P. Carter Center and Spring Grove Hospital. Students are assigned approximately three patients from the inpatient team and serve as their primary medical manager under the direction of the resident and attending psychiatrist. This responsibility and involvement with patients provide an ideal setting in which the student may apply the biopsychosocial concepts learned in the first-year behavioral social sciences course with the concepts of psychopathology and clinical skills of psychiatric interviewing, history taking and mental status examination acquired in the second-year courses. The student assumes an integral role on the multidisciplinary team and ward milieu.

Students are also given clinical exposure to patients with psychiatric or behavioral problems in a variety of other treatment settings. These are generally comprised of two four-hour per week assignments with psychiatry faculty in outpatient and consultation settings. Current assignments include a university consultation-liaison service, an urgent care walk-in clinic, an addiction consultation service, a primary care clinic, community mental health clinics, a geriatric psychiatry clinic, a child psychiatry clinic and a partial hospitalization program.

The scope of seminars includes a review of psychopathology, childhood behavioral disorders, addiction psychiatry and psychopharmacology, as well as a clinical case conference focusing on interviewing, diagnostic and treatment skills. In addition, there is a monthly combined case conference with specially selected patients with neuropsychiatric illnesses. Faculty from both neurology and psychiatry attend this conference.

Students are assigned night-call with a psychiatric resident and additionally are precepted in the psychiatric emergency service as part of their rotation. Other opportunities for educational enrichment include a precepted experiential visit to a community 12-step program (e.g., AA, NA) and observing electroconvulsive therapy. Evaluation is based upon individual preceptor evaluations (2/3) and a national board multiple-choice examination (1/3).

ELECTIVES

The Department of Psychiatry offers elective courses in all four years of the medical school curriculum. Elective courses offered in the senior year are numerous and include in-depth psychiatric experiences in: inpatient, community psychiatry, emergency psychiatry, forensic psychiatry, child psychiatry, geriatric psychiatry, substance abuse, consultation/liaison psychiatry and research electives.

Combined Accelerated Program in Psychiatry–CAPP Program. This elective track has become nationally visible for its success in engaging students in psychiatry through an advanced four-year curriculum that begins in the freshman year. The program has continued to admit 12 freshman students each year. From early in the freshman year, the track provides an unfolding progression of combined small group seminars and clinical experiences in the behavioral sciences and clinical psychiatry.

Radiation Oncology

Professor and Chair

Carl M. Mansfield, MD, ScD, FACR, FACNM

Radiation oncology is a specialty devoted to the treatment of benign and malignant tumors. Seventy percent of all cancer patients will at some point during their disease need or be eligible for radiation therapy. Fifty percent of all patients being treated in the department are being treated for a cure. Nearly 40 percent of those treated for cure are treated by a multimodality approach. Approximately 30 percent of patients treated for a cure are being treated with radiation therapy as a sole method of treatment and as the method of choice to achieve a cure.

Cancer is a complex disease. The modern and also the best approach to treating this disease is multi-modality therapy. Evidence suggests that this approach to cancer offers a patient the greatest chance of survival. This requires a multi-discipline approach to the evaluation and treatment. Emphasis is placed on the principles of radiation oncology, radiation biology, and radiation physics. The student will be taught to value the importance of the combined modality approach through lectures, actual case presentation, demonstrations and participation in new patient and follow-up clinics. The student uniquely will receive experience in the examination and diagnosis of physical findings associated with the pathology of malignant diseases. There will be teaching in the area of tumor pathology, biology, and behavior. The student will be made aware of the role of radiation oncology and the indications for its use in the management of patients with cancer.

RESEARCH INTERESTS

Department research efforts are focused upon many areas of oncology. The use of radiation as a systemic treatment agent, brachytherapy, hyperthermia, neuro-oncology, stereotaxis, conformal therapy, 3-D treatment planning, CT simulation, microcirculation of tumors, tumor microenvironment, molecular oncobiology and fractionation schemes represent several departmental research interests. These activities are conducted in the clinical and basic science environments.

UNDERGRADUATE MEDICAL PROGRAM

Fourth Year

Elective in Radiation Therapy. Students interested in oncology are offered an opportunity to participate as members of the radiation oncology team. They become familiar with the evaluation, management and follow-up of cancer patients. Included are treatment planning, dosimetry, the use of interstitial and intracavitary sources of radionuclides, remote afterloader and stereotactic radiotherapy.

GRADUATE PROGRAM

An approved four-year residency program in Radiation Oncology is offered at the University of Maryland Medical System. Teaching is carried out through didactic lectures, clinics and numerous teaching conferences, with emphasis on patient care, under the supervision of full-time staff. Elective time is spent in related oncological specialties to promote the multidisciplinary concept of managing cancer patients. The department has state-of-the-art equipment and operates several sites both on and off-campus, which include: the University Physicians Professional Building, a main facility in the Gudelsky Tower of the University of Maryland Medical System, and the Central Maryland Oncology Center in Columbia, MD.

Surgery

Professor and Chair

Bruce E. Jarrell, MD

The Department of Surgery is organized into 12 divisions: Cardiac Surgery, Emergency Medicine, General Surgery, Otolaryngology-Head and Neck Surgery, Plastic and Reconstructive Surgery, Surgical Oncology, Pediatric Surgery, Thoracic Surgery, Transplant Surgery, Urology, and Vascular Surgery. Many faculty members participate in the teaching of anatomy, pathology and physiology, and almost all participate in formal courses offered during the clinical years. During the junior year, all students must complete the eight-week clinical clerkship in surgery. Four weeks are spent in general surgery, two weeks in Shock Trauma, and two weeks in surgical specialties of vascular, transplant, CT and pediatric surgery. The general surgical clinical rotations are based at the University of Maryland Medical System, Mercy Medical Center and the Baltimore Veterans Affairs Medical Center. The four-week subspecialty rotation will consist of one week in urology, orthopaedics, otolaryngology and anesthetic management emphasizing airway management.

Electives in surgical research and summer fellowships are available to students in all four years. More extensive clinical experience with greater patient responsibility is offered by all divisions as subinternships and electives during the fourth year.

The surgical clerkship exposes the student to disease entities that can or should be treated by operative intervention and to the physiologic and metabolic consequences of such intervention. Students learn to recognize conditions that will require surgical consultation. They gain an appreciation of wound care as well as familiarity with basic emergency procedures. This course of study enables the future family practitioner, internist, pediatrician or psychiatrist to discuss probable

treatment and prognosis of various surgical diseases with their patients. Further, students are given the opportunity to explore various surgical disciplines and to participate fully in the daily activities of the surgical teams.

Graduates of approved medical schools may be considered for residencies in General Surgery, Emergency Medicine, Neurological Surgery, Otolaryngology-Head and Neck Surgery, Pediatric Surgery, Plastic and Reconstructive Surgery, Surgical Critical Care, Thoracic and Cardiovascular Surgery and Urology.

Division of Emergency Medicine

Professor and Chief

Brian J. Browne, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

During the third year, students are able to evaluate patients in the emergency room setting as part of the various surgical teams to which they are assigned during the basic surgical clerkship. They begin to establish priorities for expedient formulation of differential diagnoses and prompt intervention.

Fourth Year

The Division of Emergency Medicine offers a one-month elective during the senior year. Under direct supervision, the student functions as an intern, evaluating the patient by means of a complete history and physical examination and appropriate laboratory studies. Faculty offer monthly anatomic laboratories during which students learn minor procedures and suturing techniques. Didactic sessions include lectures and teaching rounds. Each student spends one shift riding an ambulance with Baltimore City paramedics.

GRADUATE STUDIES

The University of Maryland offers an accredited three-year residency program in emergency medicine. Residents rotate through Mercy Hospital, the R Adams Cowley Shock Trauma Center, as well as the University of Maryland Medical Center, which is the principal teaching facility for the program.

Division of General Surgery

Professor and Chief

John L. Flowers, MD

UNDERGRADUATE MEDICAL PROGRAM

First Year

Faculty members of the Department of Surgery participate in the Structure and Development, Neurosciences, and Functional Systems blocks of the first year of the undergraduate curriculum.

Third Year

Students are divided into groups for continuous assignment to individual patient services. Selected patients are assigned to individual students who are expected to record a complete history, the results of a physical examination and required laboratory studies. The differential diagnosis, final diagnosis and recommendations for therapy must be developed. Operating room participation, supervised direct patient care and attendance at outpatient clinics are required as

part of the emphasis on continuity of patient responsibility. The program is designed to provide the student with a broad overview of the fundamentals of the discipline in the clinical environment by emphasizing contact with a wide variety of adult and pediatric patients. Clinical problems encountered usually include surgical infections, neoplasms, trauma, endocrine disorders, vascular disease, gastrointestinal problems, metabolic disorders and congenital defects.

The student is responsible for a core curriculum of surgical knowledge. Emphasis throughout the course is placed on problem solving through correlation of basic science information with clinical diagnosis and management. Didactic instruction is provided through lectures, small discussion groups, clinical conferences and grand rounds. Final evaluation is based upon clinical performance and a comprehensive examination.

Fourth Year

The Department of Surgery offers four-week subinternships in general surgery at University of Maryland Medical Center and the Baltimore Veterans Affairs and Mercy Medical Centers for those students interested in a career in surgery or seeking to expand their knowledge of surgical science. Various clinical electives in general surgery are offered at the University of Maryland Medical System, Mercy Medical Center and York Hospital. Electives include general surgery, trauma surgery, vascular surgery, transplantation surgery and surgical intensive care.

Senior students are expected to be an integral part of the surgical team. Under supervision, they assume responsibility for initial patient evaluation in the clinics and emergency room, participate in pre- and post-operative care, attend the operating room, participate in clinical conferences and take night call.

GRADUATE PROGRAMS

A fully accredited residency in general surgery is based at the University of Maryland Medical System, incorporating important clinical experience at Mercy Medical Center and the Baltimore Veterans Affairs Medical Center. The program offers five years of clinical experience with graded responsibility and one year of basic investigation. Additionally, a fellowship in surgical endoscopy and laparoscopic surgery is available.

Division of Otolaryngology-Head and Neck Surgery

Associate Professor and Chief

Bert O'Malley, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

The division provides an introduction to the diseases of the head and neck. Exposure to patients with communication disabilities and impairments in hearing, speech or language also occurs. Through lecture and direct tutorial instruction, students obtain clinical experience ultimately relevant to a wide variety of fields, including family practice, pediatrics, general surgery, neurosurgery and psychiatry, as well as otolaryngology-head and neck surgery.

Third-year students who elect otolaryngology-head and neck surgery as part of the surgical clerkship are introduced to the care of patients with diseases of the ears, nose and throat. Introductory speech pathology, auditory physiology and basic audiologic techniques are presented to each group. Fundamental elements of otolaryngologic diagnosis and therapy are stressed.

Fourth Year

A one-month elective in clinical otolaryngology-head and neck surgery is offered at the University of Maryland Medical Center. The student functions as an integral member of the patient care team.

GRADUATE STUDIES

A fully accredited four-year residency program in otolaryngology-head and neck surgery is offered at the University of Maryland Medical Center. Residents must complete one year of general surgical training prior to entering this program.

Division of Pediatric Surgery

Professor and Chief

J. Laurance Hill, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

The Division of Surgical Services for Infants and Children aims to provide students with a perspective on the unique problems encountered by families, physicians and nurses when caring for patients with pediatric surgical illness, to teach management of these often complex problems and to introduce the delicate surgical techniques developed especially for young patients.

As part of the basic surgical clerkship, students may elect to spend three weeks with the pediatric surgical team. Each is assigned patients to evaluate preoperatively, to accompany to the operating room and to help manage during the postoperative period. Emphasis is placed on differential diagnosis, embryology, anatomy and developmental pathophysiology. Patients range in age from prematurity to adolescence. Exposure to the nursery, pediatric emergency room and intensive care units is an integral part of the experience. Didactic instruction is provided in the operating room, during teaching rounds, by case presentations and in conferences.

Fourth Year

During the senior year, students may choose a one-month elective on the pediatric surgery service functioning, under supervision, as a subintern.

GRADUATE STUDIES

The University of Maryland Baltimore-Johns Hopkins University integrated training program in pediatric surgery offers an accredited two-year residency. The program requires board eligibility in general surgery with candidates applying during the fourth or fifth year of general surgery training. This residency participates in a match program with 33 centers in the United States and Canada.

Division of Plastic and Reconstructive Surgery

Professor and Chief

Nelson H. Goldberg, MD

UNDERGRADUATE MEDICAL PROGRAM

As part of the basic surgical subspecialty clerkship, students may elect a rotation on the plastic surgery service at the University of Maryland Medical Center. Emphasis is placed on learning the principles of wound healing, wound care and reconstruction of post-traumatic or ablative defects. Students are also introduced to the treatment of congenital abnormalities and cosmetic problems

in both the inpatient and ambulatory environments. Daily teaching rounds provide students with an opportunity to participate in case presentations. Students accompany patients to the operating room and attend all teaching conferences.

A one-month elective is available to senior students interested in plastic and reconstructive surgery. Under supervision, the student functions as a subintern taking responsibility for pre- and post-operative care of selected patients.

GRADUATE STUDIES

The University of Maryland Baltimore and Johns Hopkins University offer a combined three-year residency program in plastic and reconstructive surgery. Each year, three residents enter this fully accredited residency training program and, upon completion, are eligible for examination by the American Board of Plastic and Reconstructive Surgery. Training takes place at the University of Maryland Medical Center, the Johns Hopkins Hospital, the R Adams Cowley Shock Trauma Center, Bayview Medical Center, Union Memorial Hospital, and the Baltimore Veterans Affairs Medical Center.

Division of Thoracic and Cardiovascular Surgery

Professor and Interim Chief

Joseph S. McLaughlin, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

The basic surgical clerkship includes a rotation on the cardiothoracic service. Students participate, along with the resident staff, in all service activities, patient care responsibilities and teaching conferences.

Fourth Year

The goal of the one-month senior elective in cardiothoracic surgery is to present, in a clinical setting, the basic pathophysiologic principles of thoracic and cardiovascular surgery. The student becomes an integral member of the patient care team and, under supervision, participates in the capacity of an intern. Emphasis is placed on diagnosis and management of the patient with surgical heart disease.

GRADUATE STUDIES

The three-year residency program is accredited by the Residency Review Committee of Thoracic Surgery. Applicants must be eligible for the American Board of Surgery examination on admission to the program. Residents are given an opportunity to assist and then perform all types of cardiothoracic operative procedures, with a particular emphasis on adult cardiac and general thoracic surgery.

Division of Transplant Surgery

Professor and Chief
Stephen T. Bartlett, MD

UNDERGRADUATE PROGRAM

Third Year

The basic surgical clerkship includes a rotation on the abdominal transplant service. Students participate, along with the resident staff, in all service activities, patient care responsibilities and teaching conferences.

Fourth Year

The goal of the one-month senior elective in transplant surgery is to understand and assist in the management of patients with renal, pancreas and hepatic transplants. This includes the basic understanding of immunosuppression, clinical immunology, the technical aspects of each procedure, organ donation and removal and complications of transplantation. The students are exposed to a large volume of patients and intense clinical service.

GRADUATE PROGRAM

An accredited fellowship program in transplantation surgery is available to candidates who have completed residency training in general surgery. This one-year program is based at the University of Maryland Medical Center. Fellows may elect to spend an additional year devoted to clinical research.

Division of Urology

Professor and Chief
Stephen C. Jacobs, MD

UNDERGRADUATE MEDICAL PROGRAM

The curriculum is designed to introduce urologic principles as they relate to preservation of health through maximum renal function, normal urine storage and transport, an acceptable voiding pattern, treatment and prevention of urinary infection, identification and management of neoplasms of the urinary tract and male reproductive system and management of urolithiasis. Instruction is also given on disorders of the male reproductive tract including infertility and disturbance in sexual function.

During the surgical subspecialties clerkship, students can elect a specialty rotation on the urologic service at either the University of Maryland Medical Center or the Harbor Hospital Center. Each student is assigned patients to evaluate, follow and present to members of the faculty. Daily rounds and conferences are held. The students observe and participate in diagnostic and operative procedures and attend the outpatient clinic.

Senior students may participate in a one-month elective in urology at the University of Maryland Medical System.

GRADUATE STUDIES

The residency program consists of five years of urologic training following two prerequisite years of general surgery. In addition to four years of clinical training, one year is devoted to basic investigation in the laboratories of the division.

Professor and Chief

William R. Flinn, MD

UNDERGRADUATE MEDICAL PROGRAM

Third Year

Vascular surgery is one of the core components of general surgery, and third-year medical students rotate on the Vascular Surgery Service for periods of two-to-four weeks. Students are specifically instructed on the performance of a thorough vascular examination, including the detection of carotid artery disease, aneurysm disease, and extremity arterial occlusive disease. They are instructed in the application of non-invasive vascular testing, including the bedside Doppler examination, as well as more sophisticated duplex ultrasound scan diagnosis. During their operating room experience, students assist in performing of major vascular reconstructive surgical procedures.

Fourth Year

Fourth-year medical students may elect a one-month rotation on the Vascular Surgery Service. During this time they are given responsibility for initial patient evaluation and assist in the planning of diagnostic evaluation and therapeutic management. Students are given advanced instruction in the performance and interpretation of noninvasive vascular testing, as well as evaluation of diagnostic arteriograms. Senior students have increasing responsibility in the operating room to help develop their technical skills. Students are also encouraged to participate in ongoing clinical research.

GRADUATE STUDIES

The Division of Vascular Surgery offers a fully accredited two-year residency position in General Vascular Surgery. The first year of this program includes experience in the Vascular Research Laboratory participating in ongoing primary research. The first year of the program also includes dedicated experience in the Non-invasive Vascular Laboratory, where the trainee will acquire skills in the performance and interpretation of all forms of non-invasive diagnostic testing. This preliminary year also includes experience in performing endovascular therapies. The second year of training is the clinical year, which is shared between the University of Maryland Medical Center and the Baltimore Veterans Administration Medical Center. The trainee serves as the supervisory resident on the Vascular Surgery Service, and is involved in the diagnostic evaluation, therapeutic decision making, and performance of vascular surgical procedures.



Programs

Program in Comparative Medicine

Director: Louis J. DeTolla Jr., VMD, PhD

Associate Professor, Departments of Pathology and Medicine

The Program in Comparative Medicine, established in 1989, studies the characterization of animal models of human disease for biomedical research and the use of such models to advance understanding of disease or biological processes. Comparative Medicine contributes to the School of Medicine by providing accredited services for laboratory animal care through Veterinary Resources, collaborative research, professional development of veterinary physicians and staff, formal training of veterinarians in residence, and a resource for information and instruction on the use of laboratory animals in research.

A three-year, full-time specialty training program in laboratory animal medicine is offered to prepare residents for board certification in the American College of Laboratory Animal Medicine (ACLAM). Applicants must have the DVM degree or equivalent from an accredited school of veterinary medicine, three years of full-time clinical practice experience, demonstrated interest/experience in laboratory animal species and research aptitude/experience. The program trains veterinarians in clinical laboratory animal medicine, surgery, pathology, laboratory diagnostics, husbandry, administration, legal aspects of animal care and use, and biomedical research, and includes assignment to clinical and laboratory rotations, coursework, seminars and contributions to scientific meetings. Research endeavors include vaccine development, transgenic animal production, infectious diseases, gene therapy, diagnostics and medical primatology.

The program also provides veterinary medical services to the Dental School, the School of Pharmacy, the University of Maryland Baltimore County and the Baltimore Veterans Affairs Medical Center. In addition, there are active working relationships with the Baltimore Zoo, the Comparative Medicine Division of Johns Hopkins University School of Medicine, Towson University and the Gerontology Research Center of the National Institute on Aging. The director serves as a member of the Animal Policy Committee of the National Aquarium in Baltimore and directs an externship program for senior veterinary students of the Virginia/Maryland Regional School of Veterinary Medicine. The director, also serves as director, University of Maryland Baltimore Veterinary Resources and is responsible for the maintenance of campus accreditation by the Association for the Accreditation and Assessment of Laboratory Animal Care (AAALAC) International. Faculty have primary academic appointments in various clinical and basic science departments and secondary appointments in Comparative Medicine.

Program in Complementary Medicine

Director: Brian M. Berman, MD

Professor, Department of Family Medicine

The mission of the Program in Complementary Medicine is to evaluate the scientific foundation and efficacy of complementary/alternative medicine and explore its integration into mainstream medicine through an evidence-based framework. Designated as a program within the School of

Medicine in 1997, the unit was started in 1991 and was formerly a division within the Department of Family Medicine. The program has been continuously involved in four overlapping spheres of activity: research, education, database and literature evaluation and clinical care. Over the past three years the program has also been home to a National Institutes of Health center grant for research in complementary medicine and pain.

The research activities of the program include: a) basic science investigations of the mechanism of action of complementary therapies, b) investigation of the efficacy, safety and cost effectiveness of complementary therapies, with special interest in dysfunction or illness from chronic pain and stress, using randomized control trials, clinical trials and outcome study designs, and c) surveys of the attitudes and clinical behaviors of various physician groups toward complementary therapies, which has significant implications for consumer options. In an effort to collect and evaluate the existing literature in complementary medicine and pain, the program has developed a database called CAMPAIN of all relevant citations in this area, and team members are involved with systematic reviews and meta-analyses. In addition, the program serves as the coordinating center for the complementary medicine field of the Cochrane Collaboration, an international effort to systematically review and update medical therapies. The faculty of the program is strongly committed to collaboration on scientific research within our own institution and with institutions nationally and abroad.

The program also provides an integrative medical clinic where patients are offered a broad range of treatment options that include conventional and complementary treatments. Complementary therapies included at the clinic range from traditional Chinese medicine and acupuncture, to homeopathy and mind/body therapies. The diagnoses seen in the clinic are primarily pain-related and include arthritis, fibromyalgia, headaches, chronic back and neck pain, with a smaller amount of cancer-related and neurologic pain. Clinical service contacts are tracked longitudinally to provide regular feedback to practitioners of treatment plan outcomes and to provide preliminary data for more formalized research protocols such as clinical trials.

The purpose of our education program is to increase the medical profession's knowledge of complementary medicine and review the safety and efficacy of various complementary therapies. Educational initiatives include a fourth-year medical school survey course, Introduction to Complementary Medicine, offered as an elective. In addition, complementary medicine lectures are offered as part of the required third-year family medicine core residents' training, bringing in experts in complementary medicine from across the country. A visiting professor series was introduced in 2000 and aims to build links with clinicians and researchers in other countries.

Program in Human Genetics

Director: Vacant

The Program in Human Genetics accentuates graduate, medical and post-graduate education in genetics with emphasis on molecular and computational genetics. Both master's and doctoral programs are available. In addition, there is a board certified master's program in genetic counseling. Positions are available for post-doctoral fellows in genetics or for MD fellows from specialized fields in medicine or pediatrics who wish to learn genetics as applicable to their fields of interest. State-of-the-art technology for sequencing, polymorphism detection and gene expression projects are available to members of the program in addition to computer facilities for bioinformatics and genetic analysis. There are numerous researchers from multiple departments working in genetics and the aim of the program is to provide a format for interaction and collaboration.

Program in Neuroscience

Director: Michael T. Shipley, PhD

Professor and Chairman, Department of Anatomy & Neurobiology

The University of Maryland Baltimore offers an inter-disciplinary program of study leading to a PhD degree in neuroscience. The program offers research training in a wide range of brain sciences, including cellular, molecular and integrative neuroscience. Research training programs investigate a wide range of issues, at levels ranging from ion channels and single cells to complex subsystems of the mammalian brain and regulation of behavior. These include studies focusing on Biological Mechanisms of Learning & Memory, Synaptic Physiology & Plasticity, Developmental Neurobiology, Pain Mechanisms, Neuroprotection & Brain Injury, Mechanisms of Dementia and Psychiatric Disorders, Brain and Reproductive Function, Genetic Basis of Brain Functions, Taste and Smell, Drug Discovery, Neuromuscular Functions & Disorders.

There are over 80 faculty members in the Program in Neuroscience. These faculty members are widely recognized as experts in neuroscience research and the treatment of neurological disorders. They function in state-of-the-art research and clinical facilities. In addition, they compete successfully for high levels of national grant funding. Faculty members have numerous collaborative teaching and supervisory interactions, which provide cohesiveness to the program and abundant opportunities for students, residents and fellows to obtain experience in interdisciplinary neuroscience studies. With over 35,000 square feet of space in laboratories of the participating faculty and more than 4,000 square feet of common equipment rooms, the Program in Neuroscience facilities include all the basic equipment needed for electrophysiological, optical, ultrastructural, immunological and molecular neurobiological studies.

Program faculty employ a wide variety of state-of-the-art techniques. At the molecular level investigators study the structure, function and membrane organization of ion channels and neurotransmitter receptors. Using *in vitro* techniques (e.g., tissue culture and brain slices), investigators study intrinsic cellular properties as well as interactions between cells in simple cell assemblies or systems with various techniques: electrophysiology (patch clamp, single channel, intracellular), functional imaging (calcium imaging, voltage-sensitive dyes), cell biology ("caged" compounds, confocal microscopy, immunocytochemistry, histochemistry), and molecular biology (DNA cloning, gene transcription, oocyte expression and transgenic mice). Neurochemical methods are used to investigate the activation of neurotransmitter receptors, second messenger production and the sequelae of these processes. Sensory systems (vision, audition, olfaction, pain, touch and taste) are studied with electrophysiological, behavioral and neuroanatomical techniques. At complex organizational levels, investigators study hormonal control of gene expression in the regulation of sexually dimorphic behaviors, neuronal cell death and the neurobiological basis of psychiatric illnesses. Behavioral and imaging (fMRI) studies in humans address the neurobiology of speech and language disorders, and pain mechanisms.

The inter-departmental Program in Neuroscience has laboratories located in the Medical, Dental and Pharmacy Schools, and the Maryland Psychiatric Research Center. Program faculty have numerous collaborations, which provide abundant opportunities for students to obtain experience in interdisciplinary neuroscience studies.

PROGRAM OF STUDY

The graduate curriculum is tailored to meet each student's research interests and career goals. The training program stresses hands-on experience in a wide variety of state-of-the-art approaches and techniques. This experience is gained through a series of rotations in different laboratories, to gain familiarity with various techniques and scientific environments.

All students complete a one-semester "Introduction to Neuroscience" course and a course in biostatistics. The program offers a wide variety of advanced courses, covering all areas of modern neuroscience research. In addition, students participate in journal clubs and seminars. First-year students also attend Professor's Rounds in Neuroscience, an informal series of talks by faculty designed to introduce the faculty and their research interests. The program offers a variety of activities designed to advance students' career development, including courses on writing grant applications and scientific papers, communication skills, and instruction on employment opportunities in academia, industry and science policy and administration.

Laboratory rotations and coursework are completed by the end of the second year in the program, at which point the student will have selected a faculty mentor and dissertation laboratory. Successful completion of a qualifying exam at the end of the second year enables the student to advance to candidacy for the PhD degree. As a PhD candidate, the student's primary focus is on research, with continued attendance at journal clubs and seminars.

FINANCIAL ASSISTANCE

Students accepted into the program receive financial support from NIH-funded training grants and from University of Maryland Baltimore sources. Stipend amounts for 1999-2000 were \$16,000 - \$18,000, plus tuition remission and student health insurance. Financial support is available for the duration of time required to complete the PhD, which typically takes four to six years. There are currently no teaching requirements for graduate students, although teaching opportunities are available for qualified, interested students.

HOW TO APPLY

Successful applicants have a bachelor's degree with training in an appropriate major field, strong letters of recommendation, and high GPAs and GRE scores. International students must take the Test of English as a Foreign Language (TOEFL) exam. Although applications are reviewed throughout the year, students are encouraged to apply early. Admission to the program is highly competitive, and acceptances are made as qualified candidates are identified.

Application forms can be obtained by contacting the program administrator via e-mail at neurosci@umaryland.edu. Alternatively, you can fill out the on-line inquiry form (http://neuroscience.umaryland.edu/inquiry_form.htm) and we will send you an application, or you can go directly to the official graduate admission form (<http://www.acaaff.usmh.usmd.edu/gradapp/>) and fill out an on-line application.

Program in Oncology

Director: Sanford A. Stass, M.D.

Professor and Interim Chair, Department of Pathology

Within the School of Medicine and the other UMB schools, the program in Oncology and the University of Maryland Greenebaum Cancer Center serve to facilitate cancer-related activities on campus. The Program in Oncology is the academic core of the Cancer Center and is based in the School of Medicine. Faculty members of the program recognize a level of excellence in, and dedication to, cancer-related teaching, research, patient care and community outreach activities. The Program in Oncology members have academic appointments in various clinical and basic science departments of the School of Medicine and other UMB schools, such as Pharmacy, Dentistry, Social Work, and Nursing. Activities of the Program in Oncology include basic and translational cancer research, student and house officer teaching, and a strong focus on new therapies in both an inpatient 40-bed unit and outpatient setting. In addition to full-time attending services on medical oncology and hematology, Cancer Center members participate in multidisciplinary clin-

ical programs centered around specific cancers (e.g. breast, thoracic, genitourinary, gynecologic, head and neck, gastroenterologic and hematologic malignancies) with specialists from surgical and radiation oncology to provide integrated care for the cancer patient.

The University of Maryland Greenebaum Cancer Center has substantial NCI/NIH funding and is one of only six National Cancer Institute planning centers. The Cancer Center is a strong participant in new drug development and trials, and is one of only a few cancer centers with an NCI Phase I Clinical Trials grant. Virtually every important drug in use in oncology today has been tested in this program. The Cancer Center has also established strong programs in Molecular and Structural Biology, Viral Carcinogenesis, Aerodigestive Cancers, Breast Cancer, Prostate Cancer, and Cancer Prevention and Control. The members have a strong commitment to intra- and inter-institutional cooperative cancer research.

Students and residents participate in weekly grand rounds and conferences, and students are encouraged to become involved in research projects with Program in Oncology members. Fellows at the Cancer Center work closely with senior faculty physicians and benefit from a comprehensive training and research environment. The Fellowship Program is a joint activity of the Cancer Center and the Division of Hematology/Oncology of the Department of Medicine at the University of Maryland School of Medicine. During the program, fellows receive intensive clinical training in a wide range of malignancies and support for independent, clinical and basic research projects.

Program in Trauma

Director: Thomas M. Scalea, MD
Professor, Department of Surgery

The Program in Trauma is organized as a multidisciplinary clinical, educational and research component within the School of Medicine. The program's core service includes general surgery, critical care, orthopaedics, plastic surgery, anesthesia, infectious disease and hyperbaric medicine. The R Adams Cowley Shock Trauma Center is defined in Maryland law as the "core component of the state's emergency medical system and shall continue to serve as the state's primary adult trauma clinical resource center" for Maryland's comprehensive system of emergency services. The center is designated by Maryland Institute for Emergency Medical Services Systems (MIEMSS) as the Primary Adult Resource Center (PARC) and serves as the statewide referral site for patients with multisystem injury, acute complex orthopaedic injury, spinal cord and column injuries, brain injury, hyperbaric medicine therapy and patients who are at risk for multiple organ dysfunction.

Shock Trauma serves as Maryland's principle teaching site for training physicians and allied professionals in the care of traumatic injury. The trauma/critical care training program involving the trauma teams and all other specialty services includes students and residents from a variety of prestigious schools and programs across the country. Students and residents participate in patient care, core curriculum lectures, case conferences and weekly grand rounds. Students and residents are also given the opportunity to participate in clinical research trials.

UNDERGRADUATE MEDICAL PROGRAM

Third Year

GSUR 530. A one-month trauma team rotation is required as part of the basic surgical clerkship. Students participate under supervision in the clinical resuscitation, diagnosis, and management of trauma and emergency medicine.

Fourth Year

GSUR 546 01. Senior students may elect a one-month elective on the trauma surgery team.

GRADUATE PROGRAMS

In conjunction with the Department of Surgery, an approved surgical critical care fellowship is offered with three months on the trauma surgical team and rotations through all the UMMS intensive care units. Successful completion leads to eligibility for a certificate of added qualification in surgical critical care. An approved orthopaedic trauma fellowship is also offered at the Shock Trauma Center. Finally, a one-year fellowship in trauma anesthesia is offered. Over the past two decades, graduates of these fellowships have become leaders in trauma across the country and abroad.



Organized Research Centers

Center For Research on Aging

Co-Directors: Andrew P. Goldberg, MD, Professor, Department of Medicine & Jay S. Magaziner, PhD, MS Hyg., Professor, Department of Epidemiology and Preventive Medicine

The Center for Research on Aging was established in 1998 under the leadership of Andrew P. Goldberg, MD, and Jay S. Magaziner, PhD, MS Hyg. The Center interfaces with and complements existing efforts of investigators in gerontology and geriatric medicine to develop research, educational and clinical programs which nurture and expand research and research training in aging, and it is committed to developing and implementing collaborative research and training in the critical areas at the University of Maryland campuses.

The mission of the Center for Research on Aging is to enhance the involvement and collaboration among interprofessional faculty in the conduct of research in aging, and to expand the conduct of interdisciplinary research training in gerontology through collaborations of investigators in gerontology at the University of Maryland Baltimore's health professional schools, the University of Maryland Baltimore County and the University of Maryland College Park. To accomplish these goals, the Center coordinates research and research training in those areas of gerontology which transcend traditional disciplinary lines and are amenable to an interdisciplinary approach. The Center has created, facilitated and expanded collaborations among investigators to further the development of academic excellence in key areas of clinical, epidemiological, basic-biomedical, mental health, legal-ethical, health services and population-based research in aging. This has amplified and enriched these areas, provided outstanding research training and educational opportunities for students, trainees and health professionals, and enhanced the delivery of multidisciplinary geriatric care.

The Center for Research on Aging emphasizes research and training in primary and secondary aspects of aging, epidemiology and health services research, the pathogenesis and treatment of chronic diseases in the elderly, and the processes and mechanisms by which the health status of the elderly can be improved through innovative translational clinical research. The Center optimizes the use of resources by building on the strengths of existing funded initiatives in aging research at the University of Maryland. These include the state funded Gerontology and Geriatrics Education and Research (GGEAR) Program, the Baltimore Hip Studies, the Department of Veterans Affairs Geriatric Research, Education and Clinical Center (GRECC), the Maryland Long-Term Care Project, the National Study of Osteoporotic Fractures, and federally funded research training (T32) programs in exercise physiology and metabolism research, the epidemiology of aging, and primary care research. The Center also has prepared several large data resources such as the Medicare Beneficiaries Survey and Stroke Registry, that can be used to address targeted areas of research and design new projects. The Center is committed to promoting research and research training in the foci of these initiatives: 1) exercise rehabilitation in functionally limited older patients; 2) the epidemiology of hip fracture; 3) the secondary prevention of coronary heart disease through health promotion and disease prevention programs in exercise, nutrition and smoking cessation; 4) the epidemiology of long-term care in the elderly residing in residential and assisted-living sites; 5) the epidemiology of stroke; 6) mental health and neurocognitive function; 7) health services and quality of life research; and 8) interdisciplinary geriatric teams. In these areas of geri-

atric research the Center promotes interdisciplinary research among faculty with similar interests, and supports pilot studies by trainees and junior faculty to enhance their competitiveness for peer-reviewed funding in gerontology.

Membership in the Center for Research on Aging is open to faculty, fellows and trainees engaged in research on aging at UMB and affiliated campuses, as well as members of academic institutions in Maryland who have major professional interests in gerontology and are involved in collaborative research in the Center. The Center's administrative infrastructure supports and fosters academic interactions and collaborations among faculty, and assists investigators in the development of new research projects and grants for peer-reviewed funding. Center members meet regularly to discuss and develop research projects, and benefit from the interdisciplinary approach of Center leadership to the conduct of innovative research, education and research training in gerontology.

Center For Health Policy/Health Services Research

Director: Claudia R. Baquet, MD, MPH

Associate Dean, Office of Policy and Planning &

Associate Professor, Department of Epidemiology and Preventive Medicine

The Center for Health Policy/Health Services Research provides epidemiologic/biostatistical support, quality improvement study design and evaluation, disease management program support, National Committee for Quality Assurance survey preparation, health outcomes studies, low literacy patient education and outreach, Medicare patient compliance studies, patient and provider surveys, and research related to rural and urban health, underserved populations and minority health care. The Center has completed health services research projects for the Maryland Department of Health and Mental Hygiene and other agencies and conducted quality improvement studies for the managed care industry. In addition, the Center has established community outreach research and education networks in urban and rural Maryland, influenced national and state health care policy and established telemedicine research and clinical programs in underserved areas.

The Center established the Computer Assisted Telephone Interviewing (CATI) Facility, a technology that has applications in survey research, outcomes measurement and patient compliance, enrollment and recruitment to clinical trials. Based in the School of Medicine, the Center is a campus-wide, multidisciplinary organized research center which involves faculty from departments throughout the University's six professional schools.

Mission Statement

To assess the changing health needs of Maryland citizens and the nation, to conduct analyses and develop policy related to state, city and national health care services, financial and economic cost, clinical outcomes, efficacy, equity and the impact of reimbursement on patient and provider behaviors. To stimulate, support and conduct interdisciplinary health policy and health services research.

Center for Health Promotion and Disease Prevention

Co-Director: Stephen Havas, MD, MPH, MS

Professor, Department of Epidemiology and Preventive Medicine and

Associate Professor, Department of Medicine

The mission of the Center for Health Promotion and Disease Prevention is to serve as the University's central focus for community-based health promotion and disease prevention research activities. The primary focus of the Center's research is the prevention of heart disease, cancer and stroke. Multidisciplinary faculty research teams from the schools of medicine, nursing, dentistry, pharmacy and social work, the University of Maryland, College Park and the University of Maryland Baltimore County participate in a variety of research projects aimed at reducing risk factors for heart disease, cancer and stroke. Risk factors being addressed include unhealthy nutrition, high blood cholesterol, obesity, physical inactivity, smoking and high blood pressure. Funding for this research has been obtained from the National Cancer Institute, the National Heart, Lung and Blood Institute, the Maryland Department of Health and Mental Hygiene and other agencies.

Other ORC faculty conduct health promotion research in areas ranging from maternal and child health to substance abuse to oral health. This ORC seeks to integrate and expand the large base of University research activities in these areas currently being conducted by core ORC faculty. This research also spans the five health care professional schools.

Research activities are carried out in a variety of community-based settings such as schools, worksites, churches, Special Supplemental Nutrition Program for Woman, Infants, and Children (WIC) sites, senior centers, hospitals and other health care facilities. Medical and other health care professional student involvement in research project activities is encouraged. This ORC is co-sponsored by the Schools of Medicine and Nursing.

Center For Vaccine Development

Director: Myron M. Levine, MD, DTPH

Professor, Departments of Medicine, Microbiology and Immunology, and Pediatrics

The Center for Vaccine Development (CVD), an Organized Research Center, is dedicated to research, training, clinical consultation and public health consultation in the broad field of vaccinology. CVD faculty hold primary appointments in the departments of medicine, pediatrics, or microbiology and immunology. The CVD has four primary missions.

The first is to foster and carry out superior, state-of-the-art, peer reviewed, innovative, multidisciplinary research on all aspects of vaccinology including:

- Basic research (e.g., pathogenesis, engineering of vaccine candidates, fundamental studies of immune response, studies of host-pathogen interaction);
- Clinical research (e.g., Phase 1 and 2 clinical trials assessing the safety, immunogenicity, transmissibility, etc., of vaccine candidates in pediatric, young adult, geriatric and special risk populations; intensive measurement of serum, mucosal and cell-mediated immune responses);
- Epidemiologic research and field studies (e.g., large-scale, randomized, controlled field trials to assess vaccine efficacy and effectiveness; serosurveys; prevalence surveys of pathogen carriage; cohort studies quantifying the occurrence and relative importance of known and newly discovered pathogens).

This dominant mission of the CVD requires a multidisciplinary approach to the development and testing of new and improved vaccines. In total, 28 full-time faculty and two adjunct faculty (18 MDs, 8 PhDs, 4 MD/PhDs) and approximately 60 staff members work in the Baltimore

complex. Approximately 90 percent of their salary support comes from competitive grants and research contracts, especially from the NIH, which, in fiscal year 2000, awarded CVD investigators over \$11.5 million in grants and contracts.

Field research is carried out at several sites around the world, most recently including Indonesia, Mali and Malawi. Of particular importance is CVD-Chile, a research group that has undertaken epidemiologic and clinical research in Santiago, Chile, over the past 20 years.

The second mission of the CVD is to train medical and graduate students, post-doctoral fellows and visiting scientists within the broad discipline of vaccinology. Several CVD faculty hold secondary appointments in departments with graduate programs such as microbiology and immunology, and epidemiology and preventive medicine, allowing them to serve as graduate student mentors. Medical students often perform short-term research internships in CVD laboratories or field sites. The CVD currently holds two NIH-supported training grants.

The CVD's third mission is to provide consultations in the area of clinical vaccinology, advice on immunizations for infants and children, travelers, pregnant women, and immunocompromised hosts, especially through our Traveler's Health Service, an outpatient clinic.

Finally, the CVD provides expert consultantships or committee membership to national and international agencies (e.g., National Institutes of Health, Food and Drug Administration, World Health Organization), foreign Ministries of Health and industry.



Endowments and Gifts

Chairs

Dr. Herbert Berger Chair in Medicine
John Zimmerman Bowers, M.D.
Professorship and Dean's Chair
Dr. Robert W. Buxton Chair in Surgery
Cobey Chair in Neonatology
Dr. John M. Dennis Chair in Diagnostic
Radiology
Dr. Martin Helrich Chair for Anesthesiology
Maxwell Hurston, M.D. Chair in
Orthopedic Surgery
Francis X. Kelly Chair in Trauma Surgery
James Lawrence Kernan Professor and Chair
of the Department of Orthopedics
Moses Paulson, M.D. and Helen Golden
Paulson Chair in the Division of
Gastroenterology
Linda and Kenneth Pollin Chair in Pediatric
Cardiology
John A. Scholl, M.D. Chair in Pediatrics
Raymond K. Thompson, M.D. Chair in
Neurosurgery
Dr. Theodore E. Woodward Chair in
Medicine
John D. Young, Jr. Chair in Urology

Professorships

Anonymous Professorship in Surgery
Anonymous Professorship in Pediatric
Medicine
Dr. William H. Crim Professorship and
Scholarship
Professorship in Dermatology
Simon and Bessie Grollman Distinguished
Professorship
Pamela Rose Hevey Professor of Neurological
Surgery
Myron M. Levine, M.D. Professorship in the
Center for Vaccine Development

Louis O.J. Manganiello, M.D. and Benjamin
Hall Smith, M.D., Professorship in
Neurosurgery
Dr. Christian and Corrine Richter
Professorship in Obstetrics and
Gynecology
Albert Shapiro, M.D. Endowed Professorship
in Dermatology
Celeste Lauve Woodward, M.D.
Professorship in Humanitarian and
Ethical Medical Practice

Visiting Professorships

Dr. Ruth W. Baldwin Visiting Professorship
in Pediatrics
Ipolitas Benedict Bronushas, M.D. Visiting
Professorship in Family Medicine
Dr. Joseph B. Ganey Visiting Professorship
in Surgery
Dr. Aaron I. Grollman Visiting Professorship
in Basic Medical Sciences
Charles M. Henderson, M.D. Visiting
Professorship
Albert R. Winner Visiting Professorship

Lectureships

Dr. Daniel J. Abramson Lectureship
Dr. Thurston R. Adams Memorial Lecture
Alice Messenger Band Lecture
Dr. Herbert Berger Lectureship
Dr. Robert W. Buxton Lectureship
Dr. Harry and Mitzie P. Cohen Lectureship in
Obstetrics-Gynecology and Anesthesiology
M. Carlyle Crenshaw, Jr., M.D.
Memorial Lectureship
Charles Reid Edwards Lecture
Lecture in Emergency Medicine
Abraham H. Finkelstein, M.D.
Memorial Lectureship

Dr. Julius Friedenwald Lecture
 Charles Getz, M.D. Memorial Lecture
 Dr. Edmund Goidl Immunology
 Lecture Fund
 Grollman Lecture Fund
 F. Albert and Mary E. Haase Lectureship
 in Otolaryngology
 Freida B. Hildenbrand Lecture in
 Alzheimer's Disease
 Dr. Harry C. Hull Distinguished Lectureship
 Dr. Jack Allen Kapland Lectureship
 James P. Keogh, M.D. Occupational
 Medicine Memorial Fund
 Bernard S. Kleiman, M.D. Lecture
 Stephen E. and Jeffrey A. Kleiman
 Lectureship
 Dr. Leon A. Kochman Clinical Lectureship
 Dr. John C. Krantz Lectureship
 Dr. Frank C. Marino Distinguished
 Lectureship in Surgery
 Dr. and Mrs. Howard B. Mays Lectureship
 in the History of Medicine and/or
 Medical Ethics
 Dr. Jerome K. Merlis Memorial Lectureship
 in Neuroscience
 Nicholas C. and Helen K. Mueller
 Surgical Lectureship
 Dr. Daniel A. Nachshen Memorial
 Lecture in Physiology
 Dr. Maurice C. Pincoffs Fund
 Plastic Surgery Distinguished Lectureship
 The Distinguished Puerto Rican Lectureship
 Isadore A. Siegel Lecture
 Dr. Harry L. Sponseller Memorial
 Distinguished Lectureship
 Dr. Samuel Steinberg and Dr. H. Boyd Wylie
 Lectureship
 Taylor Lectureship in Neurology
 and Psychiatry
 Dr. Isadore Tuerk Annual Lectureship on
 Alcoholism and Other Drug Dependencies
 Dr. Henry J. Walton Distinguished
 Lectureship in Radiology
 Dr. H. Leonard Warres Lectureship
 in Radiology
 Dr. George H. Yeager Distinguished
 Lectureship
 Reverend Dr. Gibson J. Wells Lectureship

Fellowships

Anonymous Fellowship in Surgery
 Dr. James G. Arnold Memorial Fellowship in
 Neurosurgery
 Dr. and Mrs. Frederick J. Balsam Student
 Fellowship in Rehabilitation Medicine
 Leslie B. Barnett, M.D. Memorial Student
 Fellowship in Neurology
 Jeffrey Ivan Bennett Fund
 Dr. Paul R. Brown Research Fellowship
 Jessie M. Cook Research Fellowship in
 Circulatory Disease
 Isaac E. Emerson Fellowship in
 Pharmacology
 Dr. Jose R. Fuentes Memorial Student
 Fellowship in Obstetrics and Gynecology
 Dr. Aaron I. Grollman Memorial
 Postdoctoral Fellowship in Surgery
 Harry Gudelsky Fund
 Charles M. Hitchcock Fund
 Dr. Howard C. Silver Memorial Student
 Fellowship in Family Medicine
 Dr. Harry Shelly and Mrs. Helen Shelly
 Fellowship in Urology
 John F.B. Weaver Fellowship

Awards

Class of 1966 Junior Prize for Excellence
 in Academics
 W. Wayne Babcock Award in Surgery
 James E. Bond Memorial Fund
 Louis, Ida and Samuel Cohen Awards
 Douglass Award
 Dr. A. Bradley Gaither Memorial Prize
 Sheldon E. Greisman, M.D. Prize in
 Medical Physiology
 Dr. Jeremy Hallisey Prize Fund
 Dr. Leonard M. Hummel Memorial Award
 William D. Kaplan, M.D. Award
 Elizabeth G. Macauley Memorial Award
 for Outstanding Clinical Proficiency
 Kenneth L. Malinow, M.D. Memorial Prize
 William H. Mosberg, Jr., M.D. Award
 for Neurosurgery
 Scharling Memorial Award
 John W. Turner, M.D. Memorial Prize

Dr. Henry F. Ullrich Educational Prize
 Dr. Samuel Weinberg and Frances Weinberg
 Loeb Award
 Dr. Hans R. Wilhelmsen Award
 for Excellence in Surgery
 Theodore E. Woodward Prize in
 Internal Medicine
 William Yudkoff, M.D. Memorial Award

Research Funds

Linda Baron Fund
 Andrew N. and Florence Baur
 Transplant Research Fund
 Dr. Jeffrey Benner Ophthalmology
 Research Fund
 Frank C. Bressler Reserve Fund
 Clinical Research Support Fund
 William P. Cole, Jr. Memorial Research Fund
 Myer and Etta Dana Fund
 Department of Family Medicine Fund
 Diagnostic Radiology Fund
 Dr. Francis and Margaret B. Ellis
 Memorial Fund
 John Edgar Faber Fund for Cancer
 and Heart Research
 Andrew H. Foster, M.D. Research
 and Clinical Investigation Fund
 Dr. James Frenkil Fund
 Charles Frick Research Fund
 Julius Friedenwald Research Fund
 for Medical Investigation
 Malcolm L. Friedman Fellowship Fund
 Doris N. and Sylvan Frieman Perinatology
 Research Fund
 Dr. Maurice H. Givens Fund
 Louisa H. Goldstein Research Fund
 in the Division of Rheumatology
 Dr. John C. Hemmeter Fund for
 Research in Physiology
 H. McKee Jarboe Fund for Mental Health
 Mary Gray Munroe Memorial Fund
 Bert F. Morton, M.D. Transplant
 Research Fund
 Multiple Sclerosis Research
 Development Fund
 Neurosurgery Fund "B"
 Neurosurgery Fund "G"
 Department of Neurosurgery Research Fund

Dona and Katie Oken Memorial Fund
 for Cancer Research
 Thomas W. Pangborn Research Fund
 Charles E. Parker, M.D. Research
 Fund in Pediatrics
 Pediatric Outpatient Clinic Fund
 The Pulmonary Education and
 Research Fund
 Research and Education Fund
 Richard D. Richards, M.D. Research Fund
 J.M.H. Rowland Fund for Research
 and Education in Obstetrics
 William Donald Schaefer Cancer
 Research Fund
 The Schramek Fund for Alzheimer's
 Disease Research
 The Schramek Fund for Cardiology Research
 The Schramek Fund for Diabetes Research
 Sigma-Tau Fund in Neuroprotection
 Research
 Fern Tauber Memorial Fund
 Mark Thumim, M.D. Research Fund
 in Ophthalmology
 John L. Whitehurst Fund
 Sara A. Whitehurst Fund

Unrestricted and Other Funds

Anonymous Endowed Fund in the
 Department of Surgery
 Dr. Burt J. Asper Memorial Fund
 Dr. David H. Barker Endowed Fund
 Aliya Berger Memorial Fund
 Cell Biology Fund
 Children's Residential Service Program
 Dr. Thomas B. Connor Fund
 Controversies in Congenital Heart Surgery
 David M.R. Culbreth Fund
 Dean's Academic Development Fund
 Dean's Colloquium Fund
 Dean's Office Endowment Fund
 Dean's Support Fund
 Isaac Cockey Dickson Memorial
 Dr. Francis and Margaret B. Ellis
 Memorial Fund
 Martha V. Filbert Radiation Center Fund
 Dr. Jacob E. Finesinger Memorial Fund
 Fund for Excellence
 Fund of the Faculty of Physics

Charles Getz, M.D. Fund for Computer
Learning Center
Evelyn Glick Faculty Enrichment Fund in
Basic Sciences
Dr. Edmond A. Goidl Memorial Fund
Benjamin H. Inloes, Jr., M.D. Dean's
Discretionary Fund
Nancy Kowalewski Memorial Fund
Jacob B. and Shirley K. Mandel Fund
School of Medicine Fund
Dr. W.C. Meloy Memorial
Maryland Emergency Medical Services
Endowment

MIEMSS Library Fund
Addison E. Mulliken Fund
No Name Fund
Noxell Medical School Fund
Perl Foundation Endowed Fund
Elizabeth R. Robinson Fund for the
University of Maryland Cancer Center
Elizabeth R. Robinson Fund for the
Department of Dermatology
David R. Solomon Memorial Fund
Dr. Homer U. Todd Fund
Lois A. Young-Thomas Memorial Fund

Endowments funding scholarships, student loan funds and other student prizes and awards are listed in the Financial Information and Academic Information sections.

The John Beale Davidge Alliance

Alumni and friends who make contributions to the School of Medicine of \$10,000 and above are recognized as members of the John Beale Davidge Alliance, a permanent recognition society named after the School's founder and first dean. There are two honors levels within the Alliance: the Silver Circle, for gifts of \$25,000-\$49,999 and the 1807 Circle, for contributions of \$50,000 and above. The exceptional support provided by these individuals enables the school to continue the tradition it began in 1807, of educating physicians and providing care for patients.



University and Medical School Funds

University Grants: Need based grants awarded by Financial Aid Office

Dean's Scholarship: Funds provided by the School are awarded primarily to non-resident students.

Medical Alumni Association: Interest-free loans are available to students on the basis of financial need.

Private and Endowment Funds: From bequests and private donations, the School of Medicine has established private and endowment accounts to provide fellowships, scholarships and loans for students on the basis of their academic achievement and financial need. The amounts of these fellowships, scholarships and loans vary and are awarded on an annual basis in accordance with school policy.

The availability of support from each of the funds listed below is dependent upon the income generated. Moreover, since many of the funds are governed by specific provisions set forth by the donors, awards must be made accordingly.

SCHOLARSHIPS

Dr. Daniel J. Abramson Scholarship
A.P.P.M. Auxiliary Inc. Scholarship
Balder Scholarship
Arnold S. Blaustein, M.D. Scholarship
James E. Bond Memorial Fund
Dr. Robert W. Buxton Student Aid Fund
Percy M. Chaimson Memorial Scholarship
Church Home and Hospital Medical Staff Scholarship
Class of 1969 Scholarship Fund
Israel and Cecilia E. Cohen Scholarship
Dr. William H. Crim Professorship and Scholarship
John Joseph Darrell, M.D. and John Charles Darrell, M.D. Scholarship
Isaac C. Dickson Memorial Scholarship
Winnie and George Dodge Fund
Marcia Thomas Duncan Medical Scholarship
Dr. A. Lee Ellis Scholarship
Arthur Wright Erskine Scholarship
Dr. John E. Esnard Endowment
Lester M. Fox, M.D. Scholarship
Sharon Fox Scholarship
Samuel Leon Frank Scholarship
Sylvan and May Frieman Scholarship
Dr. Morris Funk Scholarship
Milton Ginsberg Scholarship
Elvin and Florence Gottdiener Scholarship
Harry Gudelsky Fund

Horace Bruce Hetrick Scholarship
 Hermione M. Hicks Scholarship
 Margaret A. Hicks Scholarship
 Charles M. Hitchcock Scholarship
 Donald J. Hobart Scholarship
 G. D. Jackson Scholarship
 Leo Karlinski Scholarship
 Elsie Larrimore Scholarship
 Dr. Maurice Levinsky Scholarship
 Dr. Emmett E. and Mrs. Ruth A. Light Scholarship
 Dr. Alexander J. and Clara Maysels Scholarship
 Dr. James N. McCosh, Jr. Memorial Scholarship
 Medical Alumni Association Scholarship
 Mitchell Family Scholarship
 Nataro Family Scholarship
 Frederick Norman Nichols, M.D., Anne Garey Nichols,
 and Edwina Nichols Justin Scholarship
 Elain Miye Otani Memorial Scholarship
 Marvin S. Platt, M.D. '56 Scholarship
 Dr. Joel Renbaum Scholarship
 Henry Rolando Scholarship
 Morton and Elaine Schwartz Scholarship
 Streett Memorial Scholarship
 Dr. Charles Roberts Thomas Scholarship
 James M. Trench, M.D. Scholarship
 Michael Vinciguerra Trust Scholarship
 Clarence and Geneva Warfield Scholarship
 Walter M. Winters Scholarship
 Randolph Winslow Scholarship
 W. R. Winslow Residuary Trust Scholarship
 Henry Zoller, Jr. Scholarship

LOAN FUNDS

Dr. Mortimer D. Abrashkin Student Loan
 Balder Foundation Fund
 Memorial Loan Fund of the Class of 1916
 Class of 1935 Student Loan
 Jay W. Eaton Loan
 Dr. Wetherbee Fort Loan
 Gold-Steinberg Memorial Student Loan
 Isaac Gutman Loan Fund
 Sean Peter Houlihan Memorial Fund
 Robert Wood Johnson Foundation Loan
 James R. Karns, M.D. Memorial Student Loan
 W.K. Kellogg Loan
 Dr. Lloyd I. and Judith S. Kramer Loan
 William and Sarah Kraut Student Loan
 Michael H. Lipman Loan
 Joseph Lipskey Loan
 Jacob B. and Shirley K. Mandel Student Loan

Drs. Charles W. and Kathleen R. McGrady Student Loan
Medical Alumni Association Student Loan
Edward L. and Lina H. Meirhof Loan
Caroline T. and Jack C. Morgan Student Loan
Dr. and Mrs. William B. Rogers Student Loan
Jessie Smith Noyes Foundation, Inc. Loan
Charles Pfizer Loan
F. Mason Sones Jr. Memorial Student Loan
Webster M. Strayer, M.D. Student Loan
Jimmie Swartz Foundation Student Loan
Jay Whitman Memorial Student Loan

Outside Sources

The Central Scholarship Bureau offers interest-free loans in amounts up to \$3,500 per year (maximum total of \$8,000) to qualified Baltimore City and Baltimore County residents. For more information:

Central Scholarship Bureau
c/o #108 Bristol House Apartments
4001 Clarks Lane
Baltimore, Maryland 21215
(410)358-8668

Primary Care Loans may equal tuition plus \$2,500 annually. Interest accrual at 5 percent and principal payments are deferred until one year after graduation at which time both interest and principal payments begin. Both interest and principal may also be deferred for internships and residencies and for up to three years of service in the uniformed services (including National Health Service Corps) and the Peace Corps. Interest accrues from beginning of repayment period. Recipients must enter and complete a residency training program in primary health care no later than four years after graduation from the institution. Recipients must also practice primary health care until the loan is repaid in full and provide annual certification that they are practicing primary health care. Primary health care is defined as family medicine, general internal medicine, general pediatrics, preventive medicine or osteopathic general practice.

The Maryland State Scholarship Administration offers one-year Maryland Professional School Scholarships of \$200-\$1,000, which can be sought for subsequent years by proper reapplication. Senatorial and House of Delegates awards are also available. To apply, students should complete the Federal Renewal Free Application for Federal Student Aid or the Free Application for Federal Student Aid.

National Medical Fellowships are need-based awards to minority medical students. For further information and applications write:

National Medical Fellowships
250 West 57th Street
New York, New York 10019

The Federal Work-Study Program provides jobs for students who need financial aid and who choose to earn part of their educational expenses. Jobs are arranged either on or off campus with a public or private nonprofit agency. Eligible students may be employed for as many as 20 hours per week. To be eligible for Federal Work-Study a student must apply for financial aid and demonstrate financial need.

Federal Perkins Loans (formerly known as National Defense/Direct Student Loans) are available to students from the University. The aggregate legal loan maximum is \$30,000 (including undergraduate borrowing). The annual interest rate is 5 percent, interest does not accrue until repayment begins.

Federal Subsidized Stafford Loans (formerly Guaranteed Student Loans) are made by private lenders. The annual legal loan maximum for graduate students is \$8,500. The aggregate loan limit is \$65,500, including graduate and undergraduate debt. Current interest rates for new borrowers will be variable, but not higher than 8.25 percent. Interest does not accrue until repayment begins.

Federal Unsubsidized Stafford Loans are also made by private lenders. Medical students may borrow up to \$30,000 a year with an aggregate limit of \$179,000. The interest rate is variable and will be adjusted annually, with a 8.25 percent cap. Interest will accrue on the loan from the date of disbursement and may be paid quarterly, annually, or will be capitalized.

Alternative Loans are designed to meet the remaining student's eligibility after both Federal Subsidized and Unsubsidized Stafford Loans have been borrowed. Alternative loans are credit based. Students are strongly encouraged not to borrow this loan unless absolutely necessary.

Federal regulations governing financial aid are subject to change, and it is suggested that interested applicants contact the Financial Aid Office to ensure receiving the most recent information.



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University Policy Statements

Rights and Responsibilities for Academic Integrity

The academic enterprise is characterized by reasoned discussion between student and teacher, a mutual respect for the learning and teaching process and intellectual honesty in the pursuit of new knowledge. By tradition, students and teachers have certain rights and responsibilities that they bring to the academic community. While the following statements do not imply a contract between the teacher or the institution and the student, they are nevertheless conventions that should be central to the learning and teaching process.

I. Faculty Rights and Responsibilities

- A. Faculty members shall share with students and administrators the responsibility for academic integrity.
- B. Faculty members shall enjoy freedom in the classroom to discuss subject matter reasonably related to the course. In turn, they have the responsibility to encourage free and honest inquiry and expression on the part of students.
- C. Faculty members, consistent with the principles of academic freedom, have the responsibility to present courses that are consistent with their descriptions in the catalog of the institution. In addition, faculty members have the obligation to make students aware of the expectations in the course, the evaluation procedures and the grading policy.
- D. Faculty members are obligated to evaluate students fairly, equitably and in a manner appropriate to the course and its objectives. Grades must be assigned without prejudice or bias.
- E. Faculty members shall make all reasonable efforts to prevent the occurrence of academic dishonesty through appropriate design and administration of assignments and examinations, careful safeguarding of course materials and examinations, and regular reassessment of evaluation procedures.
- F. When instances of academic dishonesty are suspected, faculty members shall have the responsibility to see that appropriate action is taken in accordance with institutional regulations.

II. Student Rights and Responsibilities

- A. Students share with faculty members and administrators the responsibility for academic integrity.
- B. Students have the right of free and honest inquiry and expression in their courses. In addition, students have the right to know the requirements of their courses and to know the manner in which they will be evaluated and graded.
- C. Students have the obligation to complete the requirements of their courses in the time and manner prescribed and to submit to evaluation of their work.
- D. Students have the right to be evaluated fairly, equitably and in a timely manner appropriate to the course and its objectives.
- E. Students shall not submit as their own work any work that has been prepared by others. Outside assistance in the preparation of this work, such as librarian assistance, tutorial assistance, typing assistance or such special assistance as may be specified or approved by the appropriate faculty members, is allowed.

- F. Students shall make all reasonable efforts to prevent the occurrence of academic dishonesty. They shall by their own example encourage academic integrity and shall themselves refrain from acts of cheating and plagiarism or other acts of academic dishonesty.
- G. When instances of academic dishonesty are suspected, students shall have the right and responsibility to bring this to the attention of the faculty or other appropriate authority.

III. Institutional Responsibility

- A. Constituent institutions of the University System of Maryland shall take appropriate measures to foster academic integrity in the classroom.
- B. Each institution shall take steps to define acts of academic dishonesty, to ensure procedures for due process for students accused or suspected of acts of academic dishonesty and to impose appropriate sanctions on students found to be guilty of acts of academic dishonesty.
- C. Students expelled or suspended for reasons of academic dishonesty by any institution in the University System of Maryland shall not be admissible to any other System institution if expelled or during any period of suspension.

(Approved Nov. 30, 1989, by the University System of Maryland Board of Regents.)

Disclaimer

No provision of this publication shall be construed as a contract between any applicant or student and the University of Maryland Baltimore. The University reserves the right to change any admission or advancement requirement at any time. The University further reserves the right to ask a student to withdraw at any time when it is considered to be in the best interest of the University.

Admission and curriculum requirements are subject to change without prior notice.

Eligibility to Register

A student may register at the University when the following conditions are met:

- 1. the student is accepted to the University,
- 2. the student has received approval from the unit academic administrator, and
- 3. the student has demonstrated academic and financial eligibility.

Human Relations Code Summary

The University of Maryland Baltimore has a Human Relations Code for use by the entire campus community. The code represents the University's commitment to human relations issues. The specific purposes of the code include:

- 1. Prevention or elimination of unlawful discrimination on the basis of race, color, creed, sex, sexual orientation, marital status, age, ancestry or national origin, physical or mental handicap, or exercise of rights secured by the First Amendment of the U.S. Constitution; and
- 2. Establishing a timely, effective grievance procedure as an alternative to more lengthy formal processes for resolution of human relations issues.

A Human Relations Committee was created to oversee the code. It is comprised of campus faculty, administrators and students and is advisory to the president of the campus. The committee may institute educational programs and provide an open forum on human relations issues. In addition, the committee is charged with maintaining a mediation, investigation and hearing process for specific complaints of discrimination brought by students, faculty or staff. The code describes the particulars of the hearing process. It is the intent of the code to provide a grievance procedure for an individual on campus who wants a cross-section of the campus community to investigate and mediate a problem without having to resort to complaints to external agencies such as the Maryland Commission on Human Relations, complaints under personnel rules or lawsuits.

Copies of the Human Relations Code are available in the dean's office, student affairs and USGA offices in the Baltimore Student Union, and the Human Resources Management and Affirmative Action offices in the Administration Building.

Service to Those with Infectious Diseases

It is the policy of the University of Maryland to provide education and training to students for the purpose of providing care and service to all people. The institution will employ appropriate precautions to protect providers in a manner meeting the patients' or clients' requirements while also protecting the interest of students and faculty members participating in the provision of such care or service.

No student will be permitted to refuse to provide care or service to any assigned person in the absence of special circumstances placing the student at increased risk for an infectious disease. Any student who refuses to treat or serve an assigned person without prior consent of the school involved will be subject to penalties under appropriate academic procedures; such penalties to include suspension or dismissal.

Confidentiality and Disclosure of Student Records

It is the policy of the University of Maryland to adhere to the Family Educational Rights and Privacy Act (FERPA or Buckley Amendment). As such, it is the policy of the University:

1. to permit students to inspect their education records,
2. to limit disclosure to others of personally identifiable information from education records without students' prior written consent,
3. to provide students the opportunity to seek correction of their education records where appropriate, and
4. to advise students they may file a complaint with the U.S. Department of Education to allege a failure by the University to comply with FERPA.

Scheduling of Academic Assignments on Dates of Religious Observance

It is the policy of the University of Maryland to excuse the absence(s) of students that result from the observance of religious holidays. Students shall be given the opportunity, whenever feasible, to make up, within a reasonable time, any academic assignments that are missed due to individual

participation in religious observances. Opportunities to make up missed academic assignments shall be timely and shall not interfere with the regular academic assignments of the student. Each school/academic unit shall adopt procedures to ensure implementation of this policy.

Review of Alleged Arbitrary and Capricious Grading

It is the policy of the University of Maryland that students be provided a mechanism to review course grades that are alleged to be arbitrary or capricious. Each school/academic unit shall develop guidelines and procedures to provide a means for a student to seek review of course grades. These guidelines and procedures shall be published regularly in the appropriate media so that all faculty members and students are informed about this policy.

Position on Acts of Violence and Extremism that are Racially, Ethnically, Religiously or Politically Motivated

The University System of Maryland Board of Regents strongly condemns criminal acts of destruction or violence against the person or property of others. Individuals committing such acts at any campus or facility of the University will be subject to swift campus judicial and personnel action, including possible expulsion or termination, as well as possible state criminal proceedings.

Student Right to Know and Campus Security Act Request

The Student Right to Know and Campus Security Act (Public Law 101-542), signed into federal law November 8, 1990, requires that the University of Maryland Baltimore make readily available to its students and prospective students the information listed below.

Should you wish to obtain any of this information, please check the appropriate space(s), fill in your name, mailing address and UMB school name, print this form and send it to:

University Office of Student Affairs
Attn: Student Right to Know Request
University of Maryland Baltimore
Suite 336, Baltimore Student Union
621 West Lombard Street
Baltimore, MD 21201

COMPLETE AND RETURN THIS PORTION

- ☐ Financial Aid
- ☐ Costs of Attending the University of Maryland Baltimore
- ☐ Refund Policy
- ☐ Facilities and Services for Handicapped
- ☐ Procedures for Review of School and Campus Accreditation
- ☐ Completion/Graduation Rates for Undergraduate Students
- ☐ Loan Deferral under the Peace Corps and Domestic Violence Services Act
- ☐ Campus Safety and Security
- ☐ Campus Crime Statistics

Name

Address

UMB School and Program

Campus and Area Maps

To Reach the Campus

The University is located in downtown Baltimore, six blocks west of the Inner Harbor and two blocks north of Oriole Park at Camden Yards in the University- Center district.

From Washington, D.C. and Points South via I-95: From I-95 take Route 395 (downtown Baltimore) and exit onto Martin Luther King Jr. Boulevard, staying in the right lane. At the fourth traffic light, turn right onto Baltimore Street. Turn left at the second traffic light onto Paca Street. The Baltimore Grand Garage (visitors' parking) is immediately on the right.

From I-295N (Baltimore-Washington Parkway):

As the Parkway enters Baltimore, it briefly becomes Russell Street and then Paca Street. Continue north to the intersection of Paca and Baltimore streets, where you will see the Baltimore Grand Garage (visitors' parking) is on the right.

From Annapolis and Southern Maryland: Follow Route 50E to I-97N to 695W (Baltimore Beltway) to I-295N (Baltimore-Washington Parkway), and follow directions from points south via I-295N.

From the East: Take I-95S to Route 395 (downtown Baltimore) and follow directions from points south via I-95. Or, take 695W (Baltimore Beltway) to I-83S to its end. You will be on President Street. Go to the third traffic light and turn right onto Lombard Street. Continue about one mile and turn right onto Paca Street. The Baltimore

Grand Garage (visitors' parking) is two blocks north on the right.

From the North and Northeast: North: Follow I-83S (Harrisburg Expressway) to its end in downtown Baltimore. Follow I-83 directions above.

Northeast: The campus is accessible from I-95S to either 395 (downtown Baltimore), and follow directions from points south via I-95, or 695W (Baltimore Beltway) to I-83S. Follow I-83 directions above.

From the West: Take I-70E to 695S to I-95N. From I-95, take Route 395 and follow directions from points sought via I-95.



Transportation and Parking

Bus: MTA routes 1, 2, 7, 8, 11, 20, 35 and 36 serve the campus.

Subway: The Baltimore Metro runs from Johns Hopkins Hospital to Owings Mills. Stops nearest the University are at Lexington Market and Charles Center.

Light Rail: Light rail connects park and ride locations in northern Baltimore County and Oriole Park at Camden Yards, then continues south to Glen Burnie and Baltimore/Washington International Airport. The UniversityCenter stop is two blocks east of campus on Baltimore Street.

Train: MARC commuter service runs from Camden Station, 301 W. Camden St.



AB Administration Bldg.
737 W. Lombard St. K2

AHB Allied Health Bldg. 100 Penn St.
K3

AC Athletic Center (Pratt St. Garage) L4

BSU Baltimore Student Union
621 W. Lombard St. K6

BIO Biomedical Research Facility
108 N. Greene St. E6

BRB Bressler Research Bldg.
655 W. Baltimore St. H3

BRM Babe Ruth Birthplace/Museum N5

CB Century Bldg. 506 W. Fayette St.
E8

DH Davidge Hall 522 W. Lombard St. J7

DS Dental School 666 W. Baltimore
St. F3

DCCC Downtown Child Care Center
237 N. Arch St. B5

NMD Dr. Samuel D. Harris Nat'l Museum
of Dentistry 31 S. Greene St. J7

EH East Hall 520 W. Lombard St. J7

EHS Environmental Health & Safety Bldg.
714 W. Lombard St. J2

GL Gray Lab 520 W. Lombard St.
(rear) J7

GSB Greene St. Bldg. 29 S. Greene St. I7

HSF Health Sciences Facility
685 W. Baltimore St. H3

HSFI/F Health Sciences Facility II/Future
700 W. Lombard St. J3

HS/HSL Health Sciences and Human
Services Library 601 W. Lombard
St. L6

HGB Homer Gudelsky Bldg.
Lombard & Greene Sts. J6

HL Hope Lodge 636 W. Lexington St.
C4

HH Howard Hall 660 W. Redwood St.
H4

JTFB James T. Frenkil Bldg. 16 S. Eutaw
St. I9

LS-MLL Law School-Marshall Law Library
111 S. Greene St. K7

L-SW/F Law-Social Work Bldg./Future
500 W. Baltimore St. G7

LM Lexington Market C 7-9

LB Lombard Bldg. 515 W. Lombard St.

LSB/F Lombard St. Bldg./Future J5

MCPD Market Center Post Office D6

MBC Maryland Bar Center 520 W.
Fayette St. E7

MIEMSS Maryland Inst. for Emergency
Medical Services Systems 653 W.
Pratt St. M4

MPA Maryland Pharmacists Association
650 W. Lombard St. J4

MBIO Medical Biotechnology Center
721 W. Lombard St. K2

MSTF Medical School Teaching Facility
685 W. Baltimore St. H2

NS Nursing School 655 W. Lombard
St. K5

OP Oriole Park at Camden Yards O10

OSPC Old St. Paul's Cemetery I2

PR Pascault Row 651-665 W.
Lexington St. D3

PLC Pharmacy Learning Center
110 N. Pine St. E2

RX Pharmacy School 20 N. Pine St.
G2

PSPS Pine St. Police Station 214 N. Pine
St. C2

RMH Ronald McDonald House
635 W. Lexington St. D4

SSW School of Social Work
525 W. Redwood St. I7

STC Shock Trauma Center
Lombard & Penn Sts. I4

SMEX State Medical Examiners Bldg.
111 Penn St. L4

UMFM Univ. of MD Family Medicine
29 S. Paca St. J9

UMaryland Medical Center Univ. of MD
Medical Center
22 S. Greene St. H5

UMPB Univ. of MD Professional Bldg.
419 W. Redwood St. I9

UP University Plaza H7

USB University Square Bldg. 11 S. Paca
St. H9

VAMC Veterans Affairs Medical Center
10 N. Greene St. G6

WPCC Walter P. Carter Center
620 W. Fayette St. E4

WMH Westminster Hall 529 W. Fayette
St. F7

100NE 100 N. Eutaw St. E9

100NG 100 N. Greene St. E6

405R 405 W. Redwood St. Bldg. I9

410WF 410 W. Fayette St. E9

502F 502 W. Fayette St. Bldg. E8

701P 701 W. Pratt St. Bldg. M3

Parking
PCS Parking & Commuter Services Office
622 W. Fayette St. E5

□ Employee, ○ Student, ◇ Visitor, ◐ Patient

BGG Baltimore Grand Garage **F9**

DPP Dental Patient Parking Lot **F4**

KL Koester's Lots **C4, C5**

LXG Lexington Garage **C3**

PLG Pearl Garage **E5**

PNG Penn St. Garage **L3**

PTG Pratt St. Garage **L5**

UPG University Plaza Garage
(underground) **H7**

P PUBLIC PARKING





655 W. BALTIMORE STREET
BALTIMORE, MARYLAND 21201-1559
<http://medschool.umaryland.edu>